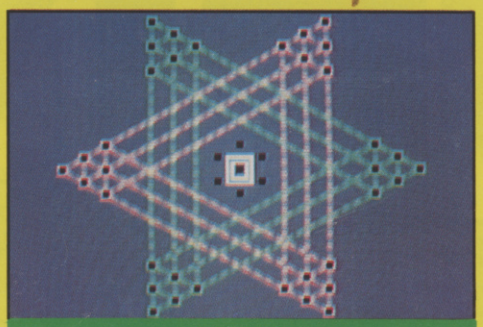
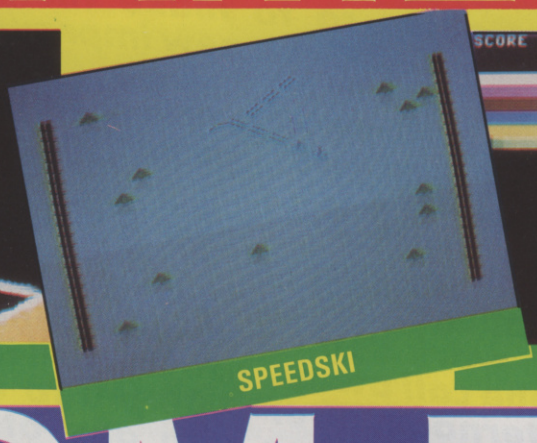
FREE



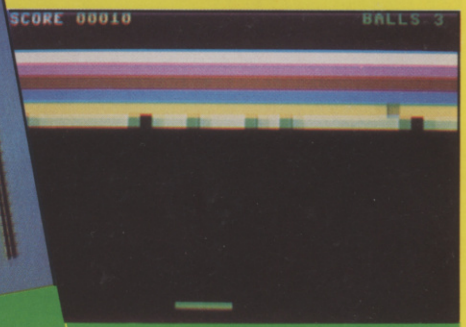
TRIADS

GAMES

STELLAR STRIKE

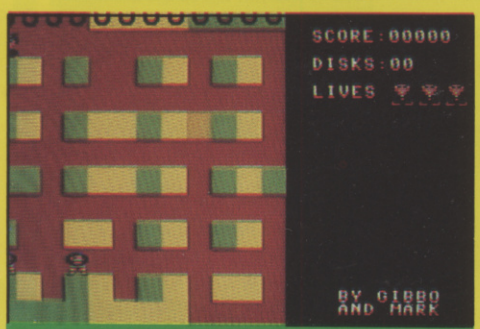


SPEEDSKI



BRICKBUSTERS

FROM THE



ATTACK OF THE SOFTWARE PIRATES

ROX DELUXE

BABY BERKS

TOP NAMES

MENU

Go on — type in a listing. You never had a greater incentive than with our Celebrity Book of Games. Every game in this free supplement is programmed by a top name programmer — with a chart-topping track record.

Chances are you probably already own at least one game by the programmers in this supplement. You know they are the best, and the games they have written exclusively for Commodore User are no exception.

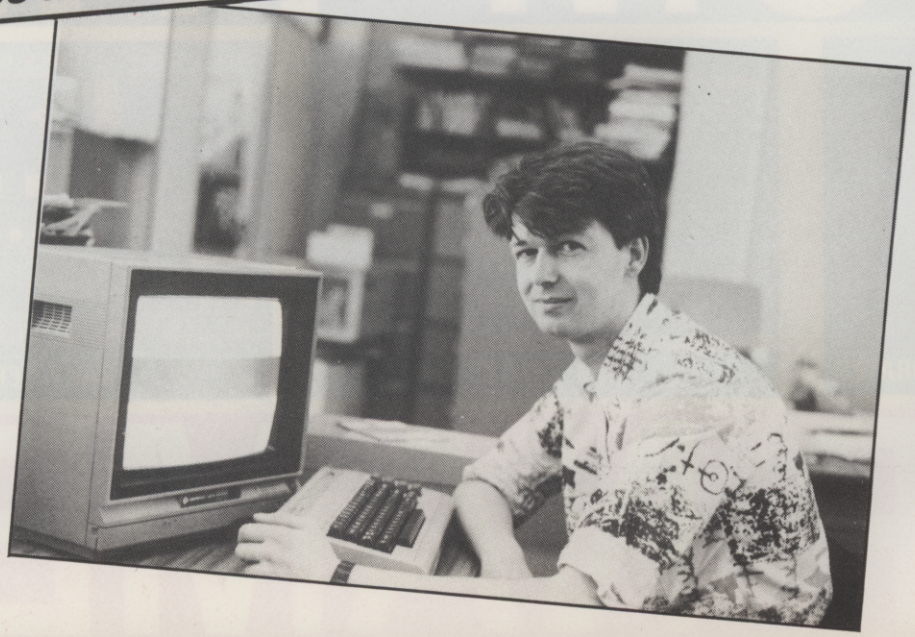
We know some of you had difficulties with our last Book of Games so to make things easier we have introduced three new improvements:

(1) Only the very best programmers in the land have been asked to write games for our Celebrity Book of Games.

(2) Each game has been checked and double-checked.

(3) Helpline — for those of you who just can't get your listing to work don't despair. Friendly Ken is only a phone call away. You can call Ken every Friday afternoon after 3.00 pm to ask for help with your listing or with any other Commodore computing problem.

Commodore User — the magazine that gives you more.



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All the games in this supplement (except Baby Berks) use a unique Easy-Enter technique. Instructions on how to use this are on the inside back cover.

Editor: Eugene Lacey
Technical Editor: Ken McMahon
Design/Production: Lynda Skerry
Deputy Editor: Bohdan Buciak
Chief Sub: Mike Pattenden
Layout: Jane Hindermarsh
Games: Jeff Minter, Tony Crowther, Mike Singleton, Gibbo and Mark Harrison, Richard Leinfellner, Jon Williams, Dub Scroggins.
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ROX DELUXE

NAME: JEFF MINTER

GAMES: Attack of the Mutant Camels, Sheep In Space, Ancipital, Mettagalactic Llamas Battle at the Edge of Time, Hovver Bovver, Psychedelia, Mama Llama, Matrix, and Grid Runner (I think that's the lot).

AGE: 21

OK, so you already know everything about Jeff Minter apart from what he has for breakfast. Well worry no longer for now I can exclusively reveal that Jeff 'Yak' Minter has only "a cup of tea and a piece of dry bread — with maybe a glass of milk" Goat's milk? Llama's milk? "No just the stuff that comes out of a bottle".

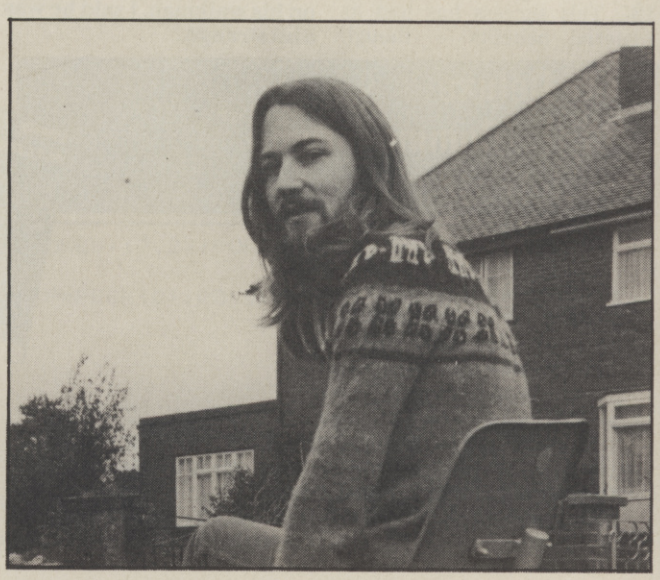
What else does he munch on in between writing games? "Junk food mostly . . . but not hamburgers, I've given them up . . . My favourite take away is baked potatoes from Spud-U-Like — especially the one with beans in".

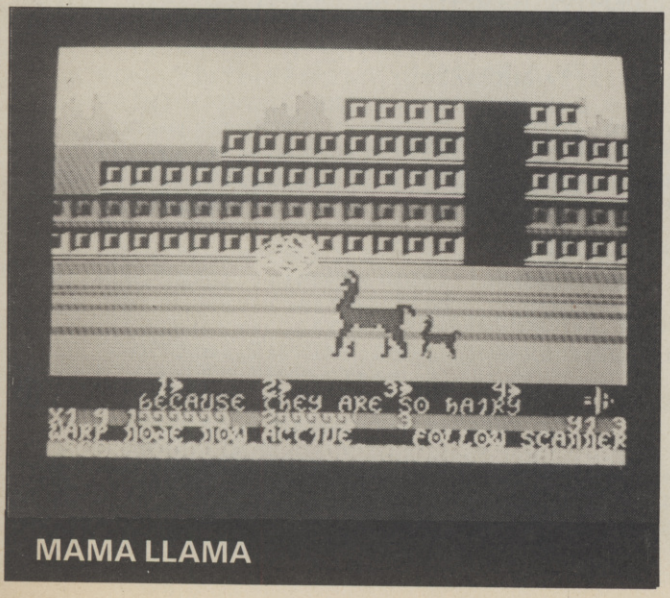
Minter is a bit strange. Hard-nosed businessmen in the software market hate him because he breaks all the rules. None of his games conform to what they learned out of the text books, or practiced when they were marketing Corn Flakes or bog rolls.

But then Minter doesn't give a toss about any of that. The last thing he would want to do is launch a game based on the latest soap opera or pop group. But you can seen it from their point of view as well. After all, if you had just forked out tens of thousands for the rights to Star Wars and some hi-tech hippy from Basingstoke out charts you with something like *Sheep in Space* or *Mettagalactic Llamas Battle at the Edge of Time*, then you would be a bit fed up, wouldn't you.

I asked Minter if he would ever consider a licensed game himself. "God, no" — came the instant reply. "It's just commercialism . . . most of the games are re-worked arcade games tied to whatever the licence is. It's really crude and lacks originality . . . I would never do it because I want to put my own ideas into the game, not somebody else's."

Minter believes the current obsession with licensed games is a strangle hold around the necks of creativity minded programmers. "There's no style . . . it's making everything look the same."





MAMA LLAMA

So who are the style survivors? "Taskset have a distinctive style which they can call their own. Activision as well; their games are always very simple but good fun to play."

But Minter qualified his praise for Activision. "*GhostBusters* is an example of a bad licensed game. It's brilliantly presented but the game itself is rubbish."

Surely the speech used in Ghostbusters and *Impossible Mission* broke new ground? "It's just digitised speech and there is nothing new about it. People were doing it years ago on the Commodore Pet. I agree it's effective in those two games, but it's still only a frill. There are two main problems with using speech in games for the 64 — it uses too much memory, and the processor can't do anything else while it is creating the speech. This is why in Impossible Mission, the man doesn't scream until after he has disappeared from the screen".

What about Tony Crowther? "He writes eight games and they are all the same." So what about the new 16-bit machines — the Atari ST and the Commodore Amiga? "I don't know enough about these machines yet to say but from what I have heard it should be possible to produce some really great games." Why? "Because the processor is much faster, you have lots more memory to play with and, in the case of the ST anyway, a good screen with beautiful graphics."

To make best use of the new hardware Minter believes programmers are going to have to come up with equally fresh ideas to improve games. "We've got to get away from the left, right, jump syndrome."

Minter managed to get away from games in one of his latest programs — Psychedelia. Describing the game at a launch party in a West End pub, he told the assembled hacks, just turn off the lights, turn up your favourite music

ROX DELUXE

and do it".

Psychedelia is one of Minter's proudest achievements. "Every new machine will have a version of Psychedelia for it . . . I am working on the Atari version at the moment . . . it's the best one of the lot, with many additional features." And what about the new games? "I will start on my new game in two weeks time. All I can say is its going to be different . . . it won't be out until the Summer though".

Minter is without doubt the best known games writer in the UK. This success has had its material benefits — though none of the traditional trappings associated with whizz kid programmers.

There is no Ferrari outside his house — though step inside and you will find ten computers including a £1,500 Apple Macintosh, several arcade games including a beloved Defender and a sit down Star Wars arcade console. You also won't find Minter sipping exotic cocktails on some Carribean beach — you are more likely to spot him half way up some mountain in Peru listening to Pink Floyd on his walkman. I said he was a bit strange.

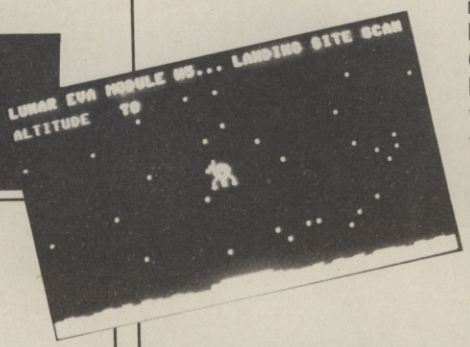
Rox Deluxe for the Commodore 64 By Jeff Minter

If Mike Singleton's Triad looks a bit too taxing on the brain, then *Rox 64* by hairy yak, Jeff Minter might be more in your line.

You must defend your Moonbase against incoming meteors by firing off rockets to destroy them. Let too many meteors through, and your moonbase will be turned to dusty by an earthquake (moonquake?).

The game is in Basic and is well Remmed, so aspiring games programmers who want to learn the secrets of the stars are encouraged to pull it apart and see how it works.

Rox is the very first thing Minter ever wrote for the 64. "I had an American Machine, you couldn't get them in England, and the very first night I got it running, I sat and hacked Rox 64 to try and find out how the bloody thing worked!" History in the making eh?



Full instructions are included in the program. If you feel like a break from shooting meteors, press *P* to pause the game. Cheats among you can get a premature display of the mothership docking by altering the *'IF AW<7'* in *line 8050* to *'IF AW<1*.

```
1 REM ****ROX-64****
2 REM BY JEFF MINTER
3 REM   16/09/1982
4 REM **************
5 REM **LLAMASOFT!**
6 REM **************
9 REM ***BLACK SCREEN+ LIMIT MEMORY***
10 POKE53280,0:POKE53281,0:POKE56,48:CLR
19 REM***SPRITE BASES***
20 FORX=0TO6:S(X)=192+X:NEXT X:V=53248
25 DIMSC$(10),SC(10):FORX=1TO10:SC$(X)="***[PUR]ROX[CYN]64[YEL]***":SC(X)=0:NEXT
 X
30 FORX=S(0)*64TOS(6)*64+64:POKEX,0:NEXTX
35 REM***MOTHERSHIP***
36 FORX=0TO50:READA:POKES(1)*64+6+X,A:NEXT X:POKE2041,S(1)
37 DATA64,20,1,16,170,4,11,255,224,21,85,88,148,0,22,144,0,6,144,0,6,144,0,6
38 DATA144,0,6,144,0,6,159,255,246,4,0,16,4,0,16,16,0,4,16,0,4,64,0,1,64,0,1
39 REM***DEFINE SPRITE #0***
40 FORX=0TO7:READA:POKES(0)*64+25+X*3,A:NEXT X
45 DATA24,62,124,255,254,126,94,8
49 REM***SPRITE #1***
50 FORX=0TO56:READA:POKES(6)*64+X,A:NEXT X:POKE2046,S(6)
55 DATA2,0,0,2,0,0,2,0,0,20,0,0,8,16,0,20,255,0,226,0,128,4,124,64
56 DATA5,66,64,4,66,64,2,66,128,1,67,0,2,254,128,4,56,64,8,40,32,16,56,16
57 DATA16,40,16,16,56,16,56,40,56
59 REM***SPRITE #2***
60 FORX=0TO7:READA:POKES(2)*64+25+X*3,A:NEXT X:POKE2042,S(2)
65 DATA192,224,118,56,24,20,2,0
67 FORX=0TO9:READG(X):NEXT X:DATA160,227,247,248,98,121,111,100,32,32
69 REM***SPRITE #3***
70 FORX=0TO7:READA:POKES(3)*64+25+X*3,A:NEXT X:POKE2043,S(3)
75 DATA8,20,28,28,28,28,42,8
79 REM***SPRITE #4***
80 FORX=0TO7:READA:POKES(4)*64+25+X*3,A:NEXT X:POKE2044,S(4)
85 DATA3,7,14,60,24,40,64,0
86 REM***EXPLOSION SPRITE***
87 FORX=0TO7:READA:POKES(5)*64+25+X*3,A:NEXT X:POKE2045,S(5)
88 DATA66,0,4,32,0,34,128,16
89 REM***SOUND REGISTERS***
90 VO=54296:WA=54276:AT=54277:H=54273:LO=54272:PH=54275:PL=54274:SU=54278
95 POKEVO,15:FI=0:A$="":KEY=197:POKEAT+14,32:POKESU+14,255
98 FORX=WATOWA+14STEP7:POKEX,17:POKEX,0:NEXT
99 REM***PRINT UP PLANET***
```

```
100 GOSUB20000:PRINT"[CLS]":FORX=1TO18:PRINT"[CD]";:NEXT
110 PRINT"[YEL][G<O][G<I][G<O][G<P][G<O][G<I][G<O][G<I][G<P][G<I][G<O][G<P][G<O]
[G<P][2G<@][G<I][REV][5G<Y][OFF][G<I][G<O][2G<P][G<O][G<@][G<O][G<P][G<O][G<@][2
G<O][G<P][G<@][G<O][G<P][G<O][G<P]";
120 PRINT"[REV][40SPC][OFF]";
130 PRINT"[HOM][WHT]LUNAR EVA MODULE #5... LANDING SITE SCAN";
135 FORX=0TO30:POKE1104+RND(1)*600,46:NEXT:DA=25:PA=3:NH=0:PT=0
140 V=53248:CO=7:POKE2040,S(0):POKEV+16,0:POKEV+45,3:POKEV+21,127:AW=1
160 GOSUB5000:DF=5:CO=8:GOSUB7500
170 FORX=V+41TOV+43:POKEX,5:NEXT
180 POKEV+44,1
190 DF=DF+2:ROX=11:CO=CO-1
199 REM***ROCK INITIALISE***
200 SX=180:SY=10:POKEV,SX:POKEV+1,SY:POKEV+39,CO:HI=0:ROX=ROX-1:IFROX=0THEN8000
210 XO=RND(1):IFRND(1)<.5THENXO=-XO
220 YO=.5:S=DF:IFS>20THENS=20
230 POKEWA,129:POKEH,200:POKELO,255:POKEVO,1:POKEV+30,0:POKEV+16,0
299 REM***MAIN MOTION LOOP***
300 SX=SX+XO*(S/3):SY=SY+YO*S
305 IFSX>255ANDHI=0THENHI=1:POKEV+16,PEEK(V+16)+1:SX=0
310 POKEV,SX:POKEV+1,SY:IFSY>190THEN1000
315 IFFITHENGOSUB6000:IFERTHEN7000
320 S=S+.3:IFS>20THENS=20
330 POKEVO,S/2
340 IF(PEEK(V+30)AND65)=65THEN10000
400 P=PEEK(KEY):IFP<>64THEN3000
410 IF FITHENGOSUB6000:IFERTHEN7000
500 GOTO300
999 REM***DO IMPACT SURFACE***
1000 T=SX+256*HI:SP=INT(T/8)-2:POKEV,0:POKEV+1,0:POKEV+16,0:POKEVO,15:POKEH,1
1010 POKEWA+14,0:FI=0:POKERY,0:FORZ=1TORND(1)*4:DA=DA-1:IFDA=0THEN12000
1016 GOSUB7500
1020 FORX=1TO10:POKEV+17,26:FORD=1TO10:NEXT:POKEV+17,27:POKEVO,15-(X/2)
1030 FORD=1TO10:NEXTD,X
1040 Q=1784+SP:P=PEEK(Q):IFP=32THENQ=1824+SP:P=PEEK(Q):POKEWA,0
1050 GR=0:FORX=0TO9:IFP=G(X)THENGR=X:X=10
1060 NEXT X:POKEQ,G(GR+1):NEXT Z
1100 GOTO200
2999 REM***ACTION FOR KEYS***
3000 IFFITHEN4000
3005 IFP<>31ANDP<>28ANDP<>39THEN4000
3010 IFP<>31THEN3100
3020 MX=164:MY=170:RX=V+4:RY=V+5:XC=-1:N=4:GOTO3500
3100 IFP<>28THEN3200
3110 MX=164:MY=170:RX=V+6:RY=V+7:XC=0:N=8:GOTO3500
3200 IFP<>39THEN4000
3210 MX=164:MY=170:RX=V+8:RY=V+9:XC=1:N=16
3500 FORX=V+4TOV+9:POKEX,0:NEXT:POKERX,MX:POKERY,MY:H2=0:N=N+1
3505 POKEWA+14,129:POKEH+14,255-MY:POKEV+16,HI
3510 FI=1:GOTO410
4000 IFP=10THEN4500
4002 IFP=41THEN4700
4005 IFP<>60ORPA=0THEN410
4006 PA=PA-1:POKEWA,19:POKEVO,15:MX=SX:MY=SY
4010 FORX=1TO30:POKE53281,3:POKEH,29:POKE53281,0:POKEH,200:NEXT:GOSUB7500
4020 GOTO7000
4499 REM***ABORT MISSION***
4500 POKEV+21,64:POKEWA,129:POKEWA+7,0:POKEWA+14,0:POKEVO,0
4505 PRINT"[HOM][L RED]***[2SPC]M I S S I O N[5SPC]A B O R T E D ***"
4510 FORX=1TO15STEP.3:POKEVO,X:YY=YY-.05*X:POKEV+13,YY:NEXT X
4520 POKEWA,17:POKEWA+7,17:POKEH,32:POKEH+7,33:POKELO,YY:POKELO+7,YY+10
4530 YY=YY-.75:POKEV+13,YY:POKEH,255-YY:POKEH+7,249-YY:IFYY>6THEN4530
4540 GOTO11000
4699 REM***PAUSE FEATURE***
4700 PRINT"[HOM][BLK][3SPC]*** PAUSE MODE - 'P' TO RESTART ***"
4705 POKE53281,1:IFPEEK(KEY)<>64THEN4700
4710 IFPEEK(KEY)<>41THEN4710
4715 IFPEEK(KEY)<>64THEN4715
4720 POKE53281,0:PRINT"[HOM][38SPC]":GOTO410
4999 REM***LEM DISPLAY***
5000 POKEAT,32:POKESU,255:POKEAT+7,32:POKESU+7,255:POKEH,17:POKELO,3
5001 POKEVO,15:POKEWA,17:POKEWA+7,17
5002 POKEH+7,16
5005 POKELO+7,3:POKEPH,8:POKEPL,8
5010 YY=3:L=S(6)*64+13:POKEV+12,168
5020 POKEL,16:POKEL-3,16:FORX=1TO8:YY=YY+.3:POKEV+13,YY:POKELO,YY:POKELO+7,YY
5025 NEXTX
```

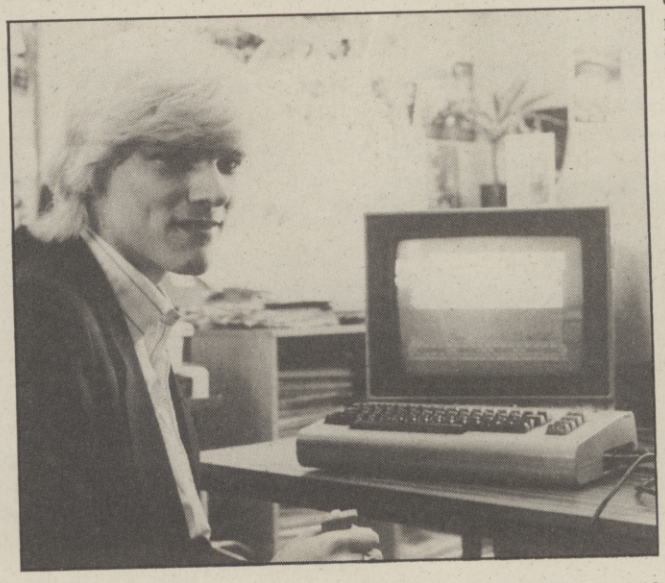
ROX DELUXE

```
5030 GOSUB5500:IFYY>175THEN5060
5040 POKEL,0:POKEL-3,0:FORX=1TO8:YY=YY+.3:POKEV+13,YY:POKELO,YY:POKELO+7,YY
5050 NEXT X:GOTO5020
5060 PRINT"[HOM][7SPC][L RED]RETRO THRUSTERS FIRING...[8SPC]";
5062 POKEWA,129:POKEWA+7,129:POKEH,7:FORX=15TO1STEP-.08:POKEVO,X:GOSUB5500
5065 YY=YY+.04:POKEV+13,YY:NEXT X
5067 PRINT"[HOM][GRN][5SPC]*** PLANETFALL SUCCESSFUL ***[6SPC]";
5070 POKEWA,17:POKEWA+7,0
5080 POKEVO,15:FORX=1TO5:PRINT"[HOM][2CD][11CR][L RED]0":POKEH,20:FORDL=1TO100:N
EXT
5090 PRINT"[HOM][2CD][11CR][WHT]0":POKEH,0:FORDL=1TO100:NEXT:NEXT
5100 PRINT"[HOM][2CD][21SPC]"
5110 FORDL=1TO1000:NEXT:PRINT"[HOM][BLK]METEOR SHOWER... MAN ALL ROCKET STATIONS
";
5115 POKEWA,17:FORX=1TO9:POKE53281,X:FORZ=0TO40STEP.5
5120 POKEH,Z:NEXT Z:NEXT X:POKE53281,0
5200 PRINT"[HOM][40SPC]";:RETURN
5500 PRINT"[HOM][2CD][PUR]ALTITUDE[2SPC][CYN]";185-INT(YY);"[CL] "
5510 RETURN
5999 REM***MOVE MY ROCKET***
6000 MX=MX+XC*8:IFMX>255THENMX=MX-255:POKEV+16,PEEK(V+16)+16
6010 MY=MY-8:IFMY<50THENPOKERY,0:FI=0:POKEWA+14,0:RETURN
6020 POKERX,MX:POKERY,MY:ER=0:POKEH+14,255-MY:POKEVO,15
6025 IF(PEEK(V+30)ANDN)=NTHEN6200
6100 RETURN
6200 ER=1:POKEWA+14,0:PT=PT+AW*100:GOTO7500
6999 REM***DO AN EXPLOSION***
7000 POKEH,6:POKEVO,15:POKEV+1,0:POKERY,0:NH=NH+1:POKEWA,129
7005 IFHI=1THENPOKEV+16,32
7010 FORX=15TO0STEP-.3:POKEV+10,SX:POKEV+11,SY:POKEVO,X:POKEV+29,32:POKEV+23,32
7020 POKEV+10,SX:POKEV+11,SY+4:POKEVO,X:POKEV+29,0:POKEV+23,0:NEXT X
7030 POKEV+11,0:FI=0:GOTO200
7499 REM***STATUS***
7500 PRINT"[HOM][21CD][PUR]SCORE:";PT;"[CL][3SPC][CYN]PANICS:";PA;"[CL] ";
7505 PRINT"[2SPC][PUR]HIGH:";SC(1)
7506 C$="[PUR]":IFDA<10THENC$="[L RED]"
7507 X=FRE(0):REM AVOIDS GARBAGE COLLECTION
7508 IFDA=0THENPRINT"[CD][9CR][2SPC]":RETURN
7510 PRINT"[CD][YEL]% DAMAGE:[REV]";C$;:FORX=1TODA:PRINT"[G>P]";:NEXT X:PRINT"[O
FF] ";:RETURN
7999 REM***ATTACK WAVES***
8000 PRINT"[HOM][BLK][6SPC]ROX ATTACK";AW;"[CL] COMPLETED!!"
8010 PRINT"[2CD][8SPC]BONUS OF 100 *";AW
8020 PT=PT+AW*100:POKEVO,15:POKEWA,33:FORX=0TO10:POKE53281,RND(1)*16:FORY=0TO60
8030 POKEH,Y:NEXTY:NEXTX:POKEWA,0:POKE53281,0
8040 PRINT"[HOM][39SPC]"
8045 PRINT"[2CD][25SPC]":GOSUB7500
8050 AW=AW+1:IFAW<7THEN190
8060 GOTO15000
9999 REM***DO IN MOONBASE***
10000 PRINT"[HOM][WHT][5SPC]*** MOON BASE DONE IN !! ***[7SPC]"
10010 POKEV+21,32:POKEWA,129:POKEH,RND(1)*254:FORX=15TO0STEP-.1
10020 POKEV+10,170:POKEV+11,180:POKEV+23,0:POKEV+29,0:POKEVO,X
10030 POKEV+10,166:POKEV+11,174:POKEV+23,32:POKEV+29,32:POKEVO,0:NEXT X
10040 POKEV+21,0:POKEWA,0:BL=1
10999 REM***ENDGAME SCORING***
11000 PRINT"[CLS][WHT]YOUR SCORE WAS .. ";PT
11005 POKEWA,0:POKEWA+7,0:POKEWA+14,0
11010 PRINT"[CD]TO THIS IS ADDED A BONUS FOR YOUR";INT(NH*100/60)
11020 PRINT"[CD]PERCENT SHOOTING ACCURACY.":B1=INT((NH/60)*5000)
11030 PRINT"[CD]BONUS:";B1:PT=PT+B1
11040 IFBL=1THENBL=0:GOTO11100
```

```
11050 PRINT"[2CD]AND AN ADDITIONAL BONUS- FOR FINISHING"
11060 PRINT"[CD]WITH AN INTACT MOON BASE!!"
11070 PRINT"[CD]BONUS: 5000 PTS.":PT=PT+5000
11100 PRINT"[2CD][YEL]YOUR FINAL SCORE WAS THUS[CYN]";PT
11110 FORX=0TO20:GETA$:NEXT X:Z=0:FORX=1TO10:IFPT>SC(X)THENZ=X:X=11
11120 NEXT X:IFZ=0THEN11500
11130 PRINT"[CD]ENTER TEXT FOR SCORE TABLE:";
11140 INPUTA$:IFLEN(A$)>15THENA$=LEFT$(A$,15)
11150 IFZ=10THEN11200
11160 FORX=9TOZSTEP-1:SC(X+1)=SC(X):SC$(X+1)=SC$(X):NEXT X
11200 SC(Z)=PT:SC$(Z)=A$:FI=0
11500 PRINT"[CLS][7CR][YEL]ROX-64 ALL TIME BEST"
11510 PRINT"[7CR][PUR][20G<Y]"
11520 FORX=1TO10:PRINT"[CD][CYN]#";X;TAB(10);"[WHT]";SC(X);TAB(23);"[YEL]";SC$(X
)
11530 NEXT X:X=FRE(0)
11540 PRINT"[CD][GRN][5SPC]PRESS 'SPACE' FOR A NEW GAME"
11550 P=PEEK(KEY):IFP<>60THEN11550
11560 GOTO100
11999 REM***MOONQUAKE!!***
12000 PRINT"[HOM][6SPC]***EXCESS SEISMIC ACTIVITY***":GOSUB7500
12010 POKEWA,129:POKEH,5:FORX=15TO0STEP-.07:POKEV+17,26:FORD=1TO10:NEXT
12020 POKEV+17,27:FORD=1TO10:NEXT:POKEVO,X:NEXT X:GOTO 10000
14999 REM***MOTHERSHIP PICKUP***
15000 POKEV+21,66:POKEV+28,2:POKEV+37,7:POKEV+38,2:REM ENABLE MULTICOLOUR SPRIT
15005 PRINT"[WHT][HOM]MISSION COMPLETED. MOTHERSHIP BONUS 5000"
15010 POKEV+23,2:POKEV+29,2:POKEV+40,4:POKEVO,15:POKEWA,33:POKEWA+7,33
15015 PT=PT+5000:GOSUB7500
15020 POKEH,2:POKEH+7,2:POKELO,1:POKELO+7,6:POKEV+3,70
15030 FORX=0TO156STEP.2:POKEV+2,X:CL=CL+.3:IFCL>15THENCL=0
15040 POKEV+40,CL:POKEV+37,15-CL:NEXT X
15060 POKEWA+14,129:FORX=15TO0STEP-.1:YY=YY-.05*(15-X):POKEV+13,YY:POKEV+38,X
15065 NEXT X:POKEWA+14,17
15070 YY=YY-.75:POKEV+13,YY:POKEH+14,200-YY:IFYY>77THEN15070
15080 POKEV+38,2:POKEWA+14,0
15090 FORX=156TO226STEP.2:POKEV+2,X
15095 YY=YY-.2:POKEV+13,YY:POKEV+12,X+12:CL=CL+1:IFCL>15THENCL=0
15096 POKEV+40,CL:POKEV+37,15-CL
15100 POKEV+3,227-X:NEXT X:GOTO11000
19999 REM***INTRO TITLES***
20000 PRINT"[CLS][YEL][4G>Q][3SPC][3G>Q][2SPC][G>Q][3SPC][G>Q][5SPC][RED][2G>Q][
CYN][2G>Q][PUR][G>Q] [YEL][G>Q] [BLU][2SPC][GRN][G>Q][3SPC][WHT]BY"
20010 PRINT"[YEL][G>Q][3SPC][G>Q] [G>Q][3SPC][G>Q][2SPC][G>Q] [G>Q][6SPC][CYN][G
>Q][5SPC][BLU][G>Q][3SPC][RED][G>Q]"
20020 PRINT"[YEL][4G>Q][2SPC][G>Q][3SPC][G>Q][3SPC][G>Q][7SPC][PUR][2G>Q][YEL][2
G>Q][BLU][G>Q] [GRN][2G>Q][RED][2G>Q][CYN][G>Q][2SPC][WHT]JEFF"
20030 PRINT"[YEL][G>Q] [G>Q][3SPC][G>Q][3SPC][G>Q][2SPC][G>Q] [G>Q][6SPC][G>Q][3
SPC][GRN][G>Q][5SPC][PUR][G>Q]"
20040 PRINT"[YEL][G>Q][2SPC][G>Q][3SPC][3G>Q][2SPC][G>Q][3SPC][G>Q][5SPC][BLU][2
G>Q][GRN][2G>Q][RED][G>Q][5SPC][YEL][G>Q] [WHT]MINTER"
20050 PRINT"[CD][WHT]* AN ARCADE-STYLE GAME FOR COMMODORE-64*"
20060 PRINT"[CD]DEFEND YOUR LUNAR MODULE BY FIRING OFF"
20070 PRINT"[CD]ROCKETS TO INTERCEPT INCOMING METEORS."
20080 PRINT"[CD]TOO MANY GROUND IMPACTS RESULT IN AN"
20085 PRINT"[CD]EARTHQUAKE! SURVIVE 60 METEORS FOR BONUS"
20090 PRINT"AND RESCUE BY MOTHERSHIP!"
20100 PRINT"[CD][YEL]CONTROLS: [CYN]V,B,N [YEL]FIRE ROCKETS. [CYN]SPACE BAR"
20110 PRINT"[CD][YEL]ACTIVATES PANIC DESTRUCTOR. [CYN]A[YEL] TO ABORT!!"
20120 FORX=53248TO53248+16:POKEX,0:NEXT
20130 PRINT"PRESS [CYN]S[YEL] TO START GAME!";
20140 IFPEEK(197)<>13THEN20140
20150 RETURN
```

STELLAR STRIKE

NAME: TONY CROWTHER
GAMES: LOCO, MONTY MOLE, GRYPHON, BLACK THUNDER, STELLAR STRIKE.
AGE: 19



Tony Crowther's first computer was an old Commodore Pet lent to him by a friend.

Three years, a Vic 20, and a 64 later, Tony Crowther is now one of the best known games programmers in the UK.

Games like *Loco*, *Killer Watt*, *Monty Mole*, *Black Thunder* and *Gryphon* need no introduction to 64 users.

At just nineteen years old, and with a shock of peroxide punk hair, Crowther is a real live teenage computer Whizz Kid.

At seventeen he wrote a quality control program for a factory. "They made bog rolls . . . my program was to check that all the machines were working properly".

This early taste of professional programming was enough to whet Tony's appetite and by the time he was into his second year of his 'A' levels he was missing a lot of school working on his games. "My school started to get stroppy, eventually they said do you want these exams or not?" This was enough to get him back to Bradfield Comprehensive in Sheffield more regularly until he left there with two A levels — including a grade 'A' pass in engineering drawing.

"I like engineering drawing. If I wasn't a programmer I can easily imagine being an engineer . . . I'm good with my hands".

Good with his hands is something of an understatement. Among Tony's skills are woodwork, metal work, and sewing. Sewing?" Yes . . . I made a dress for my girl friend once".

Crowther believes that it was the competitive drive that made him do so well in his Engineering Drawing 'A' level. "We were constantly trying to outdo each other. We all used techniques way above the level expected for the course; in the end everyone in the class got a grade 'A' . . . the master was chuffed with us".

"It's the same thing with programming really." So does he regard Jeff Minter as an arch enemy? "People like to make out that we hate each other. Jeff's criticised my games for using the same scroll routines, but I'm not going to say anything about his games . . . I'm more interested in what the public think anyway".

What about other programmers? "I get on well with most of them. We bump into each other regularly. Matthew Smith (Manic Miner, Jet Set Willy) is a good lad. We got drunk together at the Quickbyte Dinner before Christmas".

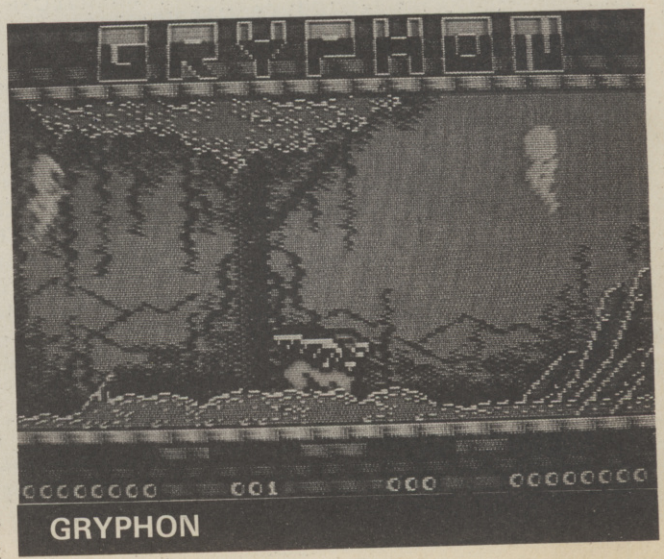
Listening to Tony Crowther you get the impression that games programmers are members of an exclusive club. All great mates, and all earning pots of money. In Tony's case — nothing could be further from the truth. "I didn't get a penny for several of the games I've written." Legal wrangles over contracts and royalty payments can make the software industry a minefield for the unsuspecting programmer. In this minefield Tony Crowther has had his fair share of hard knocks.

He has written games for four different software houses. "I now have my own company, Wizard Development. We write the games and let other people market them. This is why my last two games were put out by Quicksilva".

Tony is not saying who will get the rights to his next game, but he did let it slip that it would be a cartoon-style arcade adventure.

What about hackers — jail 'em or bail 'em? "I don't know about hackers — I'd like to be one. I think people are a bit paranoid about the whole subject. Hacking seems like a good way of finding out the power of your machine".

Could hackers start World War III? "Personally I doubt it . . . if you really want to protect information you can do".



Stellar Strike for the Commodore 64 by Tony Crowther

Tony Crowther should be a name well known to Commodore users throughout the land. For our games supplement, he's written *Stellar Strike*, based on the Skramble theme, which most of you will be familiar with.

Guide your interstellar spacecraft over the craggy terrain, blasting everything in your path with megapowerful photon torpedoes. Why photon torpedoes? Type in the game and you'll see what I mean.

The only other clue I'm going to give you is that you'll need a joystick plugged into port 2.

the listing is in Basic, so you shouldn't have any problems entering it. Don't forget to save the program to tape or disc before running it, otherwise you might end up with a 'crashed' 64. Not much of a laugh when you've spent the last hour typing the thing in. Before the program is run you'll need to type in these few lines of Basic:

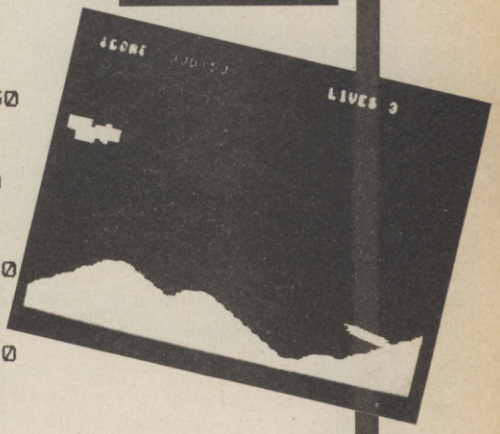
POKE 44,60
POKE 60*256,0
NEW

This must be done every time you play the game, *before* you load the program.

If, having saved the program, you can't get it to run, carefully check through the data statements. If you've made a mistake it's more likely to be here than anywhere else.

One last tactical hint. If you stick to the top half of the screen you'll stand more chance of escaping the marauding aliens. But don't get complacent, in Stellar Strike, nothing can be taken for granted!

```
1 GOSUB1000
5 T = 1
6 FOR I =0 TO 7
7 POKE 916 +I ,T
8 T =T *2
9 NEXT I
10 POKE 898 ,0 :SYS 49152
11 POKE 53272 ,29
12 GOSUB 400
13 PRINT"[HOM][RED][2SPC]SCORE[2SPC]
   [BLU]000000"
18 FOR LI =0 TO 2
19 PRINT"[HOM]"TAB(25)"[GRN]
   LIVES"3-LI
20 GOSUB 200
23 POKE 897 ,0
24 POKE 898 ,1
26 SYS 49941
27 REM DEATH
28 GOSUB 300
29 FOR I = 30 TO 230 STEP4
30 POKE 908 ,I
31 POKE 909 ,I+24
32 NEXT I
33 POKE 908 ,0
34 POKE 909 ,0
35 POKE 898 ,0
36 POKE 53269 ,0
37 NEXT LI
38 GOSUB 500
39 GOSUB 550
40 GOTO12
199 END
200 REM SET UP SPRITES
210 FOR I =0 TO 15
211 POKE 900 +I ,0
212 POKE 53248 +I ,0
213 NEXT I
214 FOR I =0 TO 7
215 POKE 53287 +I ,12
216 NEXT I
217 POKE 908 ,30
218 POKE 53249 ,100
219 POKE 909 ,54
220 POKE 53251 ,100
221 POKE 2040 ,128
222 POKE 2041 ,129
223 POKE 2042 ,130
224 POKE 2043 ,132
225 POKE 2044 ,132
226 POKE 2045 ,133
227 POKE 2046 ,131
228 POKE 2047 ,131
229 POKE 53276 ,255
230 POKE 53285 ,11
231 POKE 53286 ,15
232 POKE 53282 ,2
233 POKE 53283 ,12
234 POKE 56335 ,1
235 POKE 910 ,255
236 POKE 902 ,1
237 POKE 53253 ,150
238 POKE 911 ,200
239 POKE 903 ,1
240 POKE 53255 ,90
241 POKE 912 ,90
242 POKE 904 ,1
243 POKE 53257 ,150
244 POKE 913 ,40
245 POKE 904 ,0
246 POKE 53259 ,170
247 POKE 53292 ,6
248 POKE 53289 ,14
249 POKE 834 ,0
250 POKE 835 ,1
251 POKE 54296 ,15
259 POKE 53269 ,255
260 RETURN
300 POKE 54276 ,0
301 POKE 54273 ,4
302 POKE 54277 ,170
303 POKE 54276 ,129
304 RETURN
400 POKE 53280 ,0 :POKE 899 ,16
401 POKE 53281 ,0 :POKE 53269 ,0
402 PRINT"[CLS][CD][BLU][8SPC]
    <<<<<STELLAR STRIKE
403 PRINT"[CD][RED][5SPC]
    WRITTEN BY A.CROWTHER
404 PRINT"[5SPC]WIZARD DEVELOPMENT LTD.
405 PRINT"[CD][2SPC][CYN]HI! I'VE GOT
    A JOB FOR YOU.."
406 PRINT"[CD] WHAT I WANT YOU TO DO,
    IS BOLDLY GO
407 PRINT"[CD] WHERE NO MAN HAS BEEN
    BEFORE. 'YOU'
408 PRINT"[CD] ARE ABOUT TO ENTER
    THE INNER SPACE
409 PRINT"[CD] OF A 6502 SOLAR SYSTEM.
410 PRINT"[CD] BUT ,I MUST ADD.
411 PRINT"[CD] YOU WILL BE UNDER
    ATTACK,SO KEEP ALERT";
```



STELLAR ST

```
412 PRINT"[CD][6SPC]USE JOYSTICK PORT 2"
413 PRINT"[CD][6SPC]HIT SPACE TO START"
414 GET A$
415 IF A$ <> " " THEN414
450 POKE 53281 ,9
451 PRINT "[BRN][CLS]"
452 POKE 53281 ,0
460 RETURN
500 B =0
501 FOR I =0 TO 5
502 A = PEEK( 1033 +I ) -48
503 B =B *10
504 B =B +A
505 NEXT I
506 RETURN
550 IF B <= HI (5) THEN 560
551 PRINT"[CLS][CR][CD][WHT]
    [RED]YOU ARE ON THE HI SCORE"
552 INPUT"[CR]WHAT IS YOUR NAME";A$
553 HI$ (5) =A$
554 HI (5) =B
560 FOR I =5 TO 2 STEP-1
561 FOR J =2 TO I
562 IF HI (J) <  HI (J-1) THEN 566
563 T =HI (J-1) :A$ =HI$ (J-1)
564 HI (J-1) =HI (J):HI$ (J-1) =HI$ (J)
565 HI (J) =T:HI$ (J) =A$
566 NEXT J ,I
570 PRINT"[CLS][11SPC][2CD]
    [RED] HI SCORES
571 PRINT"[4SPC][CYN][9SPC]----
    -----[BLU]"
572 FORI=1TO5
573 PRINT TAB( 10) I; "[RED]) [PUR]"
    HI (I) TAB( 22) LEFT$ (HI$(I),4)
    "[BLU]"
574 NEXT
576 PRINT"[5CD][8SPC]PRESS SPACE
    TO CONT."
577 GET A$
578 IF A$ <> " " THEN577
579 RETURN
600 DATA60,102,110,110,96,98,60,0,636
601 DATA60,102,102,126,118,118,118,0,744
602 DATA120,108,108,126,118,118,124,0,822
603 DATA60,102,96,112,118,118,126,0,732
604 DATA124,102,102,118,118,118,124,0,806
605 DATA126,96,96,120,112,112,126,0,788
606 DATA126,96,96,120,112,112,112,0,774
607 DATA60,102,96,110,118,118,126,0,730
608 DATA102,102,102,126,118,118,118,0,786
609 DATA60,24,24,28,28,28,62,0,254
610 DATA14,12,12,12,236,236,252,0,774
611 DATA102,102,102,124,118,118,118,0,784
612 DATA96,96,96,112,112,112,126,0,750
613 DATA119,127,107,99,115,115,115,0,797
614 DATA126,102,102,118,118,118,118,0,802
615 DATA60,102,102,118,118,118,126,0,744
616 DATA124,102,102,126,112,112,112,0,790
617 DATA60,102,102,118,118,124,14,0,638
618 DATA124,102,102,124,118,118,118,0,806
619 DATA60,98,56,12,118,118,60,0,522
620 DATA126,24,24,28,28,28,28,0,286
621 DATA102,102,102,118,118,118,60,0,720
622 DATA102,102,102,118,118,60,24,0,626
623 DATA99,99,99,123,127,127,119,0,793
624 DATA102,102,60,24,60,118,118,0,584
625 DATA102,102,102,60,28,28,28,0,450
626 DATA126,6,12,28,56,120,126,0,474
627 DATA60,48,48,48,48,48,60,0,360
628 DATA12,18,48,124,48,98,252,0,600
629 DATA60,12,12,12,12,12,60,0,180
630 DATA0,24,60,126,24,24,24,24,306
631 DATA0,16,48,127,127,48,16,0,382
632 DATA0,0,0,0,0,0,0,0,0
633 DATA24,24,24,24,0,0,24,0,120
634 DATA102,102,102,0,0,0,0,0,306
635 DATA102,102,255,102,255,102,102,0,1020
636 DATA24,62,96,60,6,124,24,0,396
637 DATA98,102,12,24,48,102,70,0,456
638 DATA60,102,60,56,103,102,63,0,546
639 DATA6,12,24,0,0,0,0,0,42
640 DATA12,24,48,48,48,24,12,0,216
641 DATA48,24,12,12,12,24,48,0,180
642 DATA0,102,60,255,60,102,0,0,579
643 DATA0,24,24,126,24,24,0,0,222
644 DATA0,0,0,0,0,24,24,48,96
645 DATA0,0,0,126,0,0,0,0,126
646 DATA0,0,0,0,0,24,24,0,48
647 DATA0,3,6,12,24,48,96,0,189
648 DATA60,102,102,102,102,102,60,0,630
649 DATA24,24,24,24,24,24,24,0,168
650 DATA60,102,6,12,48,96,126,0,450
651 DATA60,102,6,28,6,102,60,0,364
652 DATA14,30,54,102,127,6,6,0,339
653 DATA126,96,124,6,6,102,60,0,520
654 DATA60,102,96,124,102,102,60,0,646
655 DATA126,6,6,12,12,24,24,0,210
656 DATA60,102,102,60,102,102,60,0,588
657 DATA60,102,102,62,6,6,6,0,344
658 DATA0,0,24,0,0,24,0,0,48
659 DATA0,0,24,0,0,24,24,48,120
660 DATA14,24,48,96,48,24,14,0,268
661 DATA0,0,126,0,126,0,0,0,252
662 DATA112,24,12,6,12,24,112,0,302
663 DATA60,102,6,12,24,0,24,0,228
664 DATA85,85,85,85,85,85,85,85,680
665 DATA192,188,171,155,102,85,89,85,1067
666 DATA0,0,0,0,192,188,167,151,698
667 DATA0,0,0,3,3,14,14,249,283
668 DATA15,58,57,229,153,86,85,101,784
669 DATA195,189,169,102,85,153,149,85,1127
700 DATA0,0,0,0,0,0,0,0,0
701 DATA0,85,85,84,106,170,169,127,826
702 DATA255,245,26,170,168,5,95,128,1092
703 DATA0,6,208,0,1,181,0,21,417
704 DATA111,0,26,169,0,127,255,1,689
705 DATA85,85,0,0,0,0,0,0,170
706 DATA0,0,0,0,0,0,0,0,0
707 DATA0,0,0,0,0,0,0,0,0
708 DATA0,0,0,0,0,0,0,0,0
709 DATA0,0,0,0,0,0,0,0,0
710 DATA252,0,21,85,80,170,170,168,946
711 DATA191,255,252,231,85,64,194,245,1517
712 DATA0,128,184,0,160,0,0,128,600
713 DATA0,0,0,0,0,0,0,0,0
714 DATA0,0,0,0,0,0,0,0,0
715 DATA0,0,0,0,0,0,0,0,0
716 DATA0,0,0,0,0,0,0,192,192
```

TRIKE

```
717 DATA0,0,192,0,48,192,0,62,494
718 DATA208,224,10,215,128,42,213,0,1040
719 DATA38,85,0,165,85,64,254,85,776
720 DATA120,149,85,64,42,93,0,43,596
721 DATA87,192,15,148,192,61,112,0,807
722 DATA48,48,0,0,48,0,0,0,144
723 DATA0,0,0,0,0,0,0,0,0
724 DATA0,0,0,0,0,0,0,0,0
725 DATA0,0,0,0,0,0,0,27,27
726 DATA254,128,0,0,0,0,0,0,382
727 DATA0,0,0,0,0,0,0,0,0
728 DATA0,0,0,0,0,0,0,0,0
729 DATA0,0,0,0,0,0,0,0,0
730 DATA0,0,0,0,0,0,0,0,0
731 DATA0,0,0,0,0,0,0,0,0
732 DATA0,0,0,0,0,0,0,0,0
733 DATA0,0,0,0,0,0,0,85,85
734 DATA96,0,255,248,0,169,84,0,852
735 DATA167,253,0,31,213,84,63,127,938
736 DATA254,5,106,170,0,85,84,0,704
737 DATA0,0,0,0,0,0,0,0,0
738 DATA0,0,0,0,0,0,0,0,0
739 DATA0,0,0,0,0,0,0,0,0
740 DATA0,128,0,0,128,0,1,144,401
741 DATA0,2,144,0,2,80,0,2,230
742 DATA80,0,2,80,0,2,80,0,244
743 DATA2,80,0,2,80,0,2,80,246
744 DATA0,2,80,0,14,92,0,14,202
745 DATA156,0,62,159,0,63,159,0,599
746 DATA243,147,192,0,192,0,0,0,774
747 DATA0,0,0,0,0,0,0,0,0
800 DATA120,169,0,141,14,220,169,1,834
801 DATA141,25,208,141,26,208,169,27,945
802 DATA141,17,208,141,18,208,169,35,937
803 DATA141,20,3,169,192,141,21,3,690
804 DATA88,96,255,238,34,192,169,1,1073
805 DATA141,25,208,173,34,192,208,14,995
806 DATA169,250,141,18,208,173,131,3,1093
807 DATA141,22,208,76,129,234,169,255,1234
808 DATA141,34,192,169,0,141,22,208,907
809 DATA169,194,141,18,208,162,0,160,1052
810 DATA0,140,16,208,189,132,3,240,928
811 DATA14,201,1,208,19,173,16,208,840
812 DATA24,125,148,3,141,16,208,189,854
813 DATA140,3,153,0,208,76,117,192,889
814 DATA169,245,153,0,208,232,200,200,1407
815 DATA224,8,208,216,173,130,3,240,1202
816 DATA3,32,135,192,76,49,234,32,753
817 DATA234,192,173,131,3,56,233,2,1024
818 DATA141,131,3,201,16,176,82,169,919
819 DATA23,141,131,3,162,0,189,249,898
820 DATA6,157,248,6,232,224,239,208,1320
821 DATA245,173,129,3,24,105,6,201,886
822 DATA186,144,2,169,0,141,129,3,774
823 DATA169,31,133,250,169,7,133,251,1143
824 DATA169,80,133,252,169,195,133,253,1384
825 DATA172,129,3,132,255,162,0,164,1017
826 DATA255,177,252,160,0,145,250,165,1404
827 DATA250,24,105,40,133,250,144,2,948
828 DATA230,251,230,255,232,224,6,208,1636
829 DATA230,96,162,2,189,140,3,56,878
830 DATA233,2,157,140,3,176,11,189,911
831 DATA132,3,24,105,1,41,1,157,464
832 DATA132,3,232,224,7,208,229,96,1131
833 DATA173,18,208,201,60,208,249,173,1290
834 DATA11,208,24,105,253,141,11,208,961
835 DATA169,255,141,0,220,173,0,220,1178
836 DATA41,1,208,19,173,1,208,201,852
837 DATA75,144,12,206,1,208,206,1,853
838 DATA208,206,3,208,206,3,208,173,1215
839 DATA0,220,41,2,208,19,173,1,664
840 DATA208,201,220,176,12,238,1,208,1264
841 DATA238,1,208,238,3,208,238,3,1137
842 DATA208,32,93,193,76,10,195,173,980
843 DATA0,0,76,8,193,173,0,220,670
844 DATA41,16,208,26,173,164,3,208,839
845 DATA21,169,1,141,164,3,169,0,668
846 DATA141,139,3,169,80,141,147,3,823
847 DATA173,1,208,32,35,195,173,164,981
848 DATA3,240,34,173,147,3,24,105,729
849 DATA8,141,147,3,144,3,238,139,823
850 DATA3,173,139,3,240,15,173,147,893
851 DATA3,201,80,144,8,169,0,141,746
852 DATA15,208,141,164,3,173,142,3,849
853 DATA56,233,1,141,142,3,176,3,755
854 DATA206,134,3,162,0,189,143,3,840
855 DATA56,233,2,157,143,3,176,3,773
856 DATA222,135,3,232,224,2,208,237,1263
857 DATA169,0,189,132,3,41,1,157,692
858 DATA132,3,232,224,8,208,243,173,1223
859 DATA5,208,201,70,240,7,201,210,1142
860 DATA240,3,76,240,193,173,165,3,1093
861 DATA24,105,1,41,1,141,165,3,481
862 DATA173,165,3,240,6,206,5,208,1006
863 DATA76,254,193,238,5,208,173,7,1154
864 DATA208,201,70,240,7,201,145,240,1312
865 DATA3,76,23,194,173,66,3,24,562
866 DATA105,1,41,1,141,66,3,173,531
867 DATA9,208,201,145,240,7,201,210,1221
868 DATA240,3,76,48,194,173,67,3,804
869 DATA24,105,1,41,1,141,67,3,383
870 DATA160,0,162,0,185,66,3,240,816
871 DATA6,222,7,208,76,66,194,254,1033
872 DATA7,208,232,232,200,192,2,208,1281
873 DATA235,173,68,3,208,63,173,6,929
874 DATA220,201,2,176,26,173,7,208,1013
875 DATA141,13,208,173,143,3,56,233,970
876 DATA24,141,146,3,173,135,3,233,858
877 DATA0,141,138,3,76,138,194,201,891
878 DATA253,144,26,173,9,208,141,13,967
879 DATA208,173,144,3,56,233,24,141,982
880 DATA146,3,173,136,3,233,0,141,835
881 DATA138,3,238,68,3,173,68,3,694
882 DATA240,34,173,146,3,56,233,3,888
883 DATA141,146,3,176,3,206,138,3,816
884 DATA173,138,3,240,15,173,146,3,891
885 DATA201,200,144,8,169,0,141,68,931
886 DATA3,141,13,208,173,30,208,141,917
887 DATA69,3,173,69,3,41,128,240,726
888 DATA28,162,2,173,69,3,61,148,646
889 DATA3,240,13,32,222,194,169,250,1123
890 DATA157,140,3,169,1,157,132,3,762
891 DATA232,224,6,208,230,96,169,0,1165
892 DATA141,64,3,141,15,208,138,72,782
893 DATA224,1,144,27,160,5,185,8,754
894 DATA4,24,105,1,153,8,4,201,500
895 DATA58,144,8,169,48,153,8,4,592
896 DATA136,208,235,202,76,232,194,76,1359
897 DATA59,195,173,69,3,41,2,240,782
898 DATA1,96,76,8,193,173,30,208,785
```

STELLAR STRIKE

```
899 DATA173,30,208,169,0,141,69,3,793
900 DATA76,8,193,141,15,208,169,0,810
901 DATA141,4,212,169,5,141,1,212,885
902 DATA169,154,141,5,212,169,129,141,1120
903 DATA4,212,96,169,105,141,5,212,944
904 DATA169,3,141,1,212,169,129,141,965
905 DATA4,212,104,170,96,0,255,255,1096
906 DATA32,65,64,64,64,64,32,66,451
907 DATA64,64,64,64,32,32,65,64,449
908 DATA64,64,32,32,66,64,64,64,450
909 DATA32,32,32,65,64,64,32,32,353
910 DATA32,66,64,64,32,32,32,32,354
911 DATA65,64,32,32,32,32,66,64,387
912 DATA32,32,32,32,32,65,32,32,289
913 DATA32,32,32,68,32,32,32,32,292
914 DATA32,69,32,32,32,32,67,64,360
915 DATA32,32,32,32,68,64,32,32,324
916 DATA32,32,65,64,32,32,32,32,321
917 DATA68,64,32,32,32,67,64,64,423
918 DATA32,32,32,68,64,64,32,32,356
919 DATA67,64,64,64,32,32,68,64,455
920 DATA64,64,32,67,64,64,64,64,483
921 DATA32,68,64,64,64,64,67,64,487
922 DATA64,64,64,64,68,64,64,64,516
923 DATA64,64,65,64,64,64,64,64,513
924 DATA66,64,64,64,64,64,32,65,483
925 DATA64,64,64,64,64,32,66,64,64,482
926 DATA64,64,32,32,69,64,64,64,453
927 DATA32,32,69,64,64,64,32,67,424
928 DATA64,64,64,64,32,68,64,64,484
929 DATA64,64,247,0,255,0,255,0,885
1000 PRINT"[CLS] PLEASE WAIT!
1001 LI =599 :FOR I =12288 TO 12840 STEP8
1002 M =0 :FOR J =I TO I+7
1003 READ A:M =M +A
1004 POKE J ,A
1005 NEXT J
1006 LI =LI +1 :READ A :IF A<>M THEN PRINT "ERROR IN LINE "LI:END
1007 NEXT I
1008 LI =699 :FOR I =8192 TO 8575 STEP8
1009 M =0 :FOR J =I TO I+7
1010 READ A:M =M +A
1011 POKE J ,A
1012 NEXT J
1013 LI =LI +1 :READ A :IF A<>M THEN PRINT "ERROR IN LINE "LI:END
1014 NEXT I
1015 LI =799 :FOR I =49152 TO 50191 STEP8
1016 M =0 :FOR J =I TO I+7
1017 READ A:M =M +A
1018 POKE J ,A
1019 NEXT J
1020 LI =LI +1 :READ A :IF A<>M THEN PRINT "ERROR IN LINE "LI:END
1021 NEXT I
1022 RETURN
```

TRIAD

NAME: MIKE SINGLETON

GAMES: 3 DEEP SPACE, SNAKES, SHADOWFAX, THE LORDS OF MIDNIGHT, DOOMDARK'S REVENGE, QUAKE 1, AND TO BE LAUNCHED LATER THIS YEAR—THE EYE OF THE MOON — THE CONCLUDING GAME IN THE MIDNIGHT TRILOGY.

AGE: 34

Ask Mike Singleton what his background is and you could get half a dozen answers and they would all be correct. Former English teacher, brains behind *Star Net* — a play-by-mail game with over three thousand players and well known computer games writer.

The thread running through all of these achievements is his obsession with games — and not only computer games.

"I have always been games crazy . . . I designed my first game when I was thirteen. It was a James Bond-style board game."

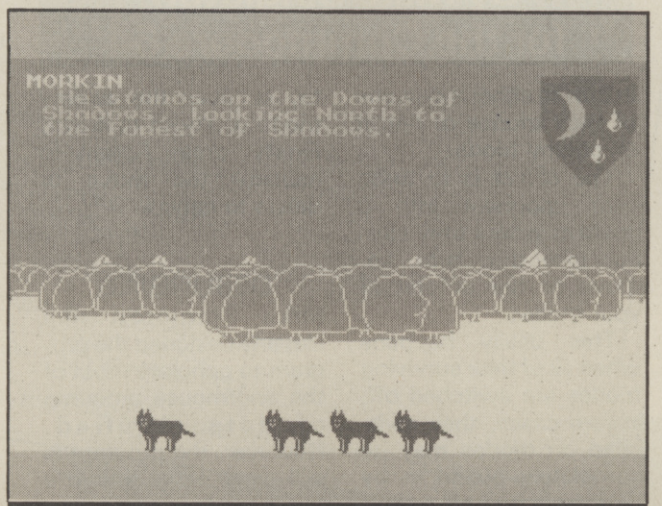
From board games Mike graduated to play-by-mail games. "I got hooked on an American game called *Star Web* in 1977. It only had fifteen players and I eventually managed to win the game two years later".

Unlike many programmers who will tell you that they will continue to write games so long as there is a market it is difficult to imagine Mike Singleton doing anything else. Ask him what his ambitions are and you get a game designer's reply: "To write a real classic game — the computer equivalent of chess — a game that people will still be playing long after I am dead and gone".

Some would say Mike has already achieved classic game status in *Lords of Midnight* and *Doomdark's Revenge* but there is plenty more on the way from him this year.

The next game from the Singleton keyboard is *Quake 1* — a game featuring an animated form of his revolutionary technique 'landscaping'. Landscaping enables the player to walk through the playing area of the game and move and look in authentic directions. So that if you look north and see a village it gets larger as you move towards it.

Quake is being co-written by Warren Foulkfe — a young programmer who now works full time for Mike — helping to run Star Net.



LORDS OF MIDNIGHT

The game is set in the future in a city on the floor of the ocean. The city is serviced and maintained by robots — who are also armed in the event of a terrorist attack.

But what the robots don't know is that the controlling computers have been programmed by the terrorists with a special mode called — 'Quake mode' — which will cause the whole complex to explode in twenty four hours. It's you to the rescue. You must hack into the main computer and get some of the droids on your side in an attempt to avoid disaster.

Quake 1 will be launched "in the summer" — the first time Mike has launched a game on the 64 before the Spectrum.

Running simultaneously with Quake 1 is Mike's other main project for '85 — *The Eye of The Moon* — the final game in the Midnight trilogy.

"It's bigger and better than the first two . . . the last one (Doomdark's Revenge) had 6,000 locations — Eye of the Moon will have at least 16,000".

Currently only Lords of Midnight is available on the 64 though Doomdark's Revenge will also be lauched this year.

When Eye of the Moon is finally launched on the 64 — probably not before Spring '86 — it will have a number of other improvement, as well as sheer complexity on the first two games.

"Characterisation will be better — with close ups of the individual faces — approximately 256 of them so far . . . it will also incorporate more adventure elements and it will have a two player option".

The first trilogy — which will conclude with the Eye of the Moon is not likely to be the end of Midnight — there's more to come.

Triad
By Mike Singleton for the Commodore 64

Although the rules of Triad are simple enough, the strategy and tactics involved are pretty complex, so don't be in a hurry to master it.

First type in the accompanying listing and save it to tape or disc in the usual manner. Before you run it, read the following brief instructions because, believe me, you won't get very far without them.

THE BOARD

The field of play consists of a star-shaped hexagonal array of spaces or nodes. The pieces or triodes are placed on the nodes. Each of the two players start the game with eighteen triodes arranged in three groups of six occupying three of the star's six points. If that sounds complicated take a look at the illustration and you'll see what I mean — one player has red triodes, the other plays with the green.

PULSES

Triodes can either be switched on or off. A switched on triode emits pulses of its own colour in three directions — Alpha Sigma and Zeta. An easy way to visualise these is that they correspond to the three arms of the letter Y.

The pulses terminate when they reach another triode or the edge of the board. Switched off triodes emit no pulses. A triode is switched on if it receives pulses from another triode of the same colour, otherwise it is switched off. A triode cannot therefore, be switched on and off directly, but only by movement of itself or other triodes so that the pulse streams are altered to hit the switched off triode.

MOVING AROUND

A triode can move to any position on the board not already occupied. Movement must be along the Alpha, Sigma annd Zeta axes and you cannot jump over triodes of either colour blocking your path. Only switched on triodes can move.

FIRING

A switched-on triode can fire in any of the directions Alpha, Sigma or Zeta. It must fire at an enemy triode that is also switched on and there must be no triodes between the attacking triode and its target.

THE PLAY

Both players start with all their triodes switched on. The green player starts, then each player takes it in turn to either move one of their triodes or fire at an enemy triode.

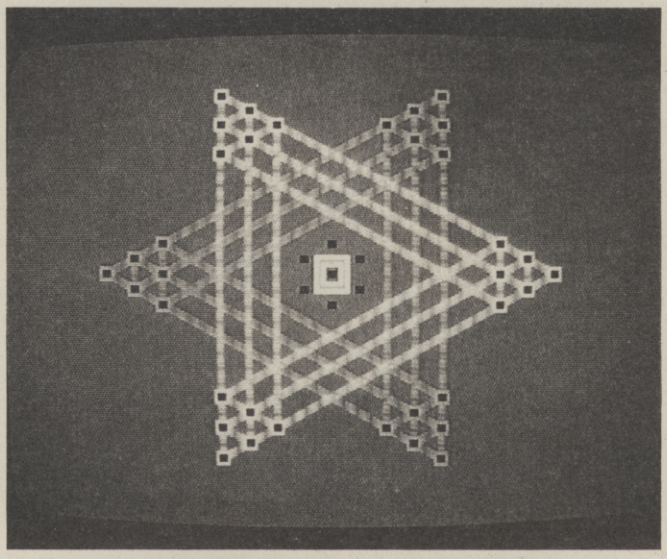
The object is to force your opponent into a position where they cannot take their turn, i.e. move or fire at one of your triodes.

This usally happens when all of their surviving triodes are switched off; in rare cases, their switched on triodes may be completely boxed in by your switched off ones.

KEYBOARD CONTROLS

KEY	FUNCTION
A	Direction Alpha
S	Direction Sigma
Z	Direction Zeta
M	Move a triode
F	Fire with a triode
Return	Confirm movement or firing
Delete	Cancel movement or firing

To start a new game, press the Commodore key and N. The coloured stripe in the cursor indicates whose turn it is. Place the cursor over one of your switched on triodes and press M or F. Next, using the movement keys A, S, and Z, position the cursor on the node you wish to move to, or over the enemy triode you wish to fire at. Finally, press Return to execute the move or delete to cancel.



DEBUGGING

Mike Singleton has cleverly designed the program to generate most of the enormouse amounts of data required. However, the program is still very long and it's possible the odd error might creep in when you enter it.

It may be helpful to know what should be happending, even if it isn't, so here's what you should seen when the program is run.

First the title screen should appear with the word *Triads* in large orange letters. After a minute or so delay, while the program generates the necessary data, the title screen will be replaced by the board.

WHAT YOU SEE

Initially, all the triodes are switched off and no pulse streams are flowing. After a short pause, the triodes are switched on, with lines of pulses drawin in to the accompaniment of beeps. When all the triodes are on, a white and green cursor appears in the middle of the screen and the pulse streams begin moving. You should then be able to move the cursor and play the game.

If you find that everything looks a complete mess when the title screen is replaced by the board, your mistake will probably be between *lines 150* and *2800*, where the data is generated.

If the cursor doesn't function as it should, the mistake is likely to be in *lines 20 - 150*. If switching does not happen according to the rules, check from *line 3000* onwards.

BEFORE YOU START

One last thing: When the board is visible you won't be able to read error messages because the screen area has been relocated. The only clue you'll get is that some of the cells turn a funny colour. To read the error message press Return, type *GOTO 10000* and press Return again.

TRIAD

```
 1 POKE52,68:POKE56,68:CLR:GOTO 150
 8 REM PULSES
 10 Q1=Q1-8*INT(Q1/8):Q2=8+Q1
 11 POKECH,(PEEK(CH)AND240)ORQ2
 12 Q1=Q1+2
 13 RETURN
 18 REM KEYSCAN
 20 GOSUB 10:KY=PEEK(197):IF KY=64 THEN 20
 21 IF KY=12 THEN D=0:GOSUB 40:GOTO 20
 22 IF KY=13 THEN D=1:GOSUB 40:GOTO 20
 23 IF KY=10 THEN D=2:GOSUB 40:GOTO 20
 24 IF KY=36 THEN 60
 25 IF KY=21 THEN 100
 26 IF KY=39 AND PEEK(654)=2 THEN 3500
 27 GOTO 20
 38 REM CURSOR
 40 IF L%(CU,D)=0 THEN RETURN
 41 CU=L%(CU,D)
 42 X=X%(CU):XH=INT(X/256):XL=X-256*XH
 43 Y=Y%(CU)
 44 POKE X2,PEEK(X1):POKEY2,PEEK(Y1)
 45 XQ=PEEK(XZ):XB=2*(XQ AND 1):POKEXZ,XQ OR XB
 46 POKE FL,(PEEK(FL)AND4)+2
 47 POKE Y1,Y:POKEX1,XL:POKE XZ,(XQ AND 254) OR XB OR XH
 48 POKE FL,(PEEK(FL)AND4)+1
 49 POKE XZ,(XQ AND 254) OR XH
 50 RETURN
 58 REM MOVE
 60 IF C%(CU)<>PLAYER OR SW%(CU)=0 THEN 20
 61 POKE Z1,34:POKE Z2,34:POKE Z3,33
 62 RX=PEEK(X1):RY=PEEK(Y1):RZ=PEEK(XZ)
 63 POKE X3,RX:POKE Y3,RY:POKEXZ,5*(RZ AND 1):POKE FL,5:CZ=CU
 64 GOSUB 10:KY=PEEK(197):IF KY=64 THEN 64
 65 IF KY=12 THEN D=0:GOTO 70
 66 IF KY=13 THEN D=1:GOTO 70
 67 IF KY=10 THEN D=2:GOTO 70
 68 IF KY=0 THEN POKE Z1,32:POKE Z2,32:POKE FL,1:GOTO 20
 69 GOTO 64
 70 IF L%(CU,D)=0 OR C%(L%(CU,D))>0 THEN 64
 71 CY=KY
 72 GOSUB 10:KY=PEEK(197):IF KY=64 THEN 72
 73 IF KY=CY AND C%(L%(CU,D))=0 THEN GOSUB 40:GOTO 72
 74 IF KY>1 THEN 72
 75 IF KY=1 THEN 80
 76 POKE Z1,32:POKEZ2,32:POKE FL,1
 77 POKE X1,RX:POKE Y1,RY:POKE XZ,RZ
 78 CU=CZ:GOTO 20
 80 POKE FL,0
 81 OS=CZ:GOSUB3000
 82 OS=CU:GOSUB3200
 88 REM NEXT TURN
 90 PLAYER=3-PLAYER:CU=121
 91 X=X%(CU):XH=INT(X/256):XL=X-256*XH:Y=Y%(CU)
 92 POKE Z1,32:POKE Z2,32
 93 POKE X1,XL:POKE Y1,Y:POKE XZ,XH
 94 IF PLAYER=1 THEN POKE PC,10
 95 IF PLAYER=2 THEN POKE PC,5
 96 POKE SC,1:POKE FL,1:GOTO 20
 98 REM FIRE
 100 IF C%(CU)<>PLAYER OR SW%(CU)=0 THEN 20
 101 POKE Z1,33:POKE Z2,33:POKE Z3,32
 102 RX=PEEK(X1):RY=PEEK(Y1):RZ=PEEK(XZ)
 103 POKE SC,0
 104 POKE X3,RX:POKE Y3,RY:POKEXZ,5*(RZ AND 1):POKE FL,5:CZ=CU
```

TRIAD

```
105 GOSUB 10:KY=PEEK(197):IF KY=64 THEN 105
106 IF KY=12 THEN D=0:GOTO 120
107 IF KY=13 THEN D=1:GOTO 120
108 IF KY=10 THEN D=2:GOTO 120
109 IF KY=0 THEN POKE Z1,32:POKE Z2,32:POKE SC,1:POKE FL,1:GOTO 20
110 GOTO 105
120 CN=L%(CU,D):IF CN=0 THEN 130
121 IF C%(CN)=PLAYER THEN 130
122 IF C%(CN)=0 THEN GOSUB 40:GOTO 120
123 IF SW%(CN)=0 THEN 130
124 GOSUB 40
125 GOSUB 10:KY=PEEK(197):IF KY=64 THEN 125
126 IF KY=1 THEN 140
127 IF KY>0 THEN 125
130 POKE SC,1
131 POKE Z1,32:POKEZ2,32:POKE FL,1
132 POKE X1,RX:POKE Y1,RY:POKE XZ,RZ
133 CU=CZ:GOTO 20
140 POKE FL,0
141 OS=CU:GOSUB 3000
142 GOTO 90
150 PRINT"[CLS]";
160 PRINT"[CLS]";
170 POKE53280,11:POKE53281,11
180 POKE53282,10:POKE53283,5
200 DIM B%(3)
210 FORK=0TO3
220 B%(K)=24576+K*2048
230 NEXT
240 PRINT"[GRN][3SPC]FROM THE PAGES OF COMMODORE USER..."
245 FORK=1TO15:PRINT:NEXT
250 FOR K=1 TO 6: READ GR%(K):NEXT
260 FOR J=0 TO 3
265 READ L$
270 FOR K=0 TO 30
275 POKE 1228+J*40+K,GR%(ASC(MID$(L$,K+1,1))-64)
280 POKE 55500+J*40+K,8
285 NEXT:NEXT
290 PRINT"[WHT][8SPC]A GAME BY MIKE SINGLETON"
300 DIM ND%(2,2,2)
310 FOR A=0 TO 2: FOR B=0 TO 2: FOR C=0 TO 2
340 ND%(A,B,C)=A+B*3+C*9
350 NEXT:NEXT:NEXT
360 DIM IL%(2,2,1)
370 FOR H=0 TO 1: FOR B=0 TO 2:FOR C=0 TO 2
385 IL%(B,C,H)=27+B+C*3+H*9
390 NEXT:NEXT:NEXT
400 FOR SET=0 TO 3
410 FOR K=0 TO 359
420 POKE B%(SET)+K,0
430 NEXT
440 FOR VEC=0 TO 2
450 V1=3^VEC:V2=2*V1
460 FOR K=0 TO 7
470 READ MASK
480 POKE B%(SET)+V1*8+K,85 AND MASK
490 POKE B%(SET)+V2*8+K,170 AND MASK
500 NEXT:NEXT
510 FOR A=0 TO 2: FOR B=0 TO 2: FOR C=0 TO 2
540 B1=B%(SET)+8*ND%(A,0,0)
550 B2=B%(SET)+8*ND%(0,B,0)
560 B3=B%(SET)+8*ND%(0,0,C)
570 B4=B%(SET)+8*ND%(A,B,C)
580 FOR K=0 TO 7
```

```
590 POKE B4+K,PEEK(B1+K)ORPEEK(B2+K)ORPEEK(B3+K)
600 NEXT:NEXT:NEXT:NEXT
610 FOR H=0 TO1: FOR B=0 TO 2:FOR C=0 TO 2
626 IF B>0 AND C>0 THEN 680
630 B1=B%(SET)+8*ND%(0,B,C)+4*H
640 B2=B%(SET)+8*IL%(B,C,H)+4-4*H
650 FOR K=0 TO 3
660 POKE B2+K,PEEK(B1+K)
670 NEXT
680 NEXT:NEXT:NEXT
690 FOR H=0 TO 1:FOR B=1 TO 2:FOR C=1 TO 2
720 B1=B%(SET)+8*IL%(B,0,H)
730 B2=B%(SET)+8*IL%(0,C,1-H)
740 B3=B%(SET)+8*IL%(B,C,H)
750 FOR K=0 TO 7
760 POKE B3+K,PEEK(B1+K)ORPEEK(B2+K)
770 NEXT:NEXT:NEXT:NEXT SET
800 FOR C=45 TO 49:FOR K=0 TO 7
820 READ N
830 FOR SET=0 TO 3
840 POKE B%(SET)+C*8+K,N
850 NEXT:NEXT:NEXT
910 FORK=17408TO18431:POKEK,0:NEXT
1000 DIM L%(121,3):DIM P%(121):DIM X%(121)
1012 DIM Y%(121):DIM C%(121):DIM SW%(121)
1015 DIM SQ%(18,2):DIM N%(6,7):DIM V%(7)
1040 DIM W%(7):DIM Q%(6):DIM R%(6)
1070 DIM G%(6):DIM H%(6):DIM D%(2)
1091 D%(0)=2:D%(1)=4:D%(2)=6:FOR K=1 TO 6
1110 V%(K)=K:W%(K+1)=K
1120 READ Q%(K),R%(K),G%(K),H%(K)
1130 NEXT
1140 OX=20:OY=12
1150 N%(1,2)=121
1160 FOR A=1 TO 101 STEP 20
1165 COL=1-COL
1170 AP=A-20:IF AP=-19 THEN AP=101
1180 AN=A+20:IF AN=121 THEN AN=1
1190 C=A
1200 FOR Y=2 TO 6
1210 FOR X=2 TO 5
1220 N%(X,Y)=C:C=C+1
1230 NEXT:NEXT
1240 C=AP
1250 FOR X=2 TO 6
1260 N%(X,1)=C:C=C+4
1270 NEXT
1280 C=AN
1290 FOR Y=3 TO 6
1300 N%(1,Y)=C:C=C+1
1310 NEXT
1320 FOR Y=2 TO 6: FOR X=2 TO 5
1340 PX=OX+(X-1)*Q%(V%(1))+(Y-2)*Q%(V%(2))
1350 PY=OY+(Y-2)*R%(V%(2))+(X-1)*R%(V%(1))
1355 N=N%(X,Y)
1360 P%(N)=17408+PX+40*PY
1365 X%(N)=18+8*PX:Y%(N)=44+8*PY
1370 IF X+Y>8 THEN C%(N)=1+COL:QQ%(1+COL)=QQ%(COL+1)+1:SQ%(QQ%(1+COL),1+COL)=N
1380 NEXT:NEXT
1100 FOR Y=2 TO 6:FOR X=2 TO 5:FOR D=0 TO 2
1130 V=W%(D%(D)+1)
1140 L%(N%(X,Y),D)=N%(X+G%(V),Y+H%(V))
```

TRIAD

```
1450 NEXT:NEXT:NEXT
1500 V%(7)=V%(1):W%(1)=W%(7)
1505 FOR K=1 TO 6
1510 V%(K)=V%(K+1)
1520 W%(8-K)=W%(7-K)
1530 NEXT
1540 NEXT A
1550 FOR D=0 TO 2
1560 L%(121,D)=1+20*(D%(D)-1)
1570 NEXT
1580 P%(121)=17408+OX+OY*40
1585 X%(121)=18+8*OX:Y%(121)=44+8*OY
1590 ND%(0,0,0)=45
1600 FOR S=1 TO 121
1610 POKE P%(S),45+C%(S)
1620 NEXT
2000 DIM PV%(2)
2010 DIM IC%(2,2,2)
2020 DIM SC%(2,1)
2030 DIM I%(121,2)
2035 DIM O%(121,2)
2040 DIM T%(121,2)
2050 DIM OS%(50)
2060 DIM QC%(50)
2070 DIM QD%(50)
2100 FOR K=0 TO 2:FOR J=0 TO 1
2110 READ SC%(K,J)
2120 NEXT:NEXT
2200 FORK=0 TO 2
2210 READ PV%(K)
2220 NEXT
2300 FOR C=0 TO 2:FOR K=0 TO 2:FOR J=0 TO 2
2340 READ IC%(K,J,C)
2350 NEXT:NEXT:NEXT
2355 FORK=55296TO56295:POKEK,8:NEXT
2360 POKE53270,PEEK(53270)OR16
2370 POKE56578,PEEK(56578)OR3
2380 POKE56576,(PEEK(56576)AND252)OR2
2390 POKE53272,(PEEK(53272)AND240)OR8
2400 SPR=72*256
2410 FOR S=0 TO 128 STEP 64:V=0
2420 READ RD%(0),RD%(1),RD%(2),R
2430 FOR K=1 TO R
2440 FOR J=0 TO 2
2450 POKE SPR+S+V+J,RD%(J)
2460 NEXT:V=V+3:NEXT
2470 IF V<63 THEN 2420
2480 NEXT
2490 POKE53276,255
2500 X1=53248:X2=53250:X3=53252:XZ=53264
2510 Y1=53249:Y2=53251:Y3=53253
2520 PC=53285:SC=53286:FL=53269
2550 Z1=18424:Z2=18425:Z3=18426
2560 CH=53272
2600 POKE X1,X%(121):POKE Y1,Y%(121)
2610 POKE PC,5:POKE SC,1
2630 POKE Z1,32:POKEZ2,32
2700 CU=121:PLAYER=2
2710 POKE 54296,15:POKE 54277,0:POKE 54278,244
2713 POKE54272,0
2720 GATE=54276
2730 FQ=54273
2800 Q=0:C=2:D=1:S=L%(20,D):GOSUB4100
2810 Q=0:C=1:D=2:S=L%(40,D):GOSUB4100
2820 POKE FL,1:GOTO20
2998 REM REMOVE
3000 IF Q2<>8 THEN GOSUB 10:GOTO 3000
3001 POKE GATE,33
3002 FOR K=50 TO 5 STEP -1:POKE FQ,K:NEXT
3010 FOR D=0 TO 2
3015 O%(OS,D)=I%(OS,D)*SGN(L%(OS,D))
3020 NEXT
3030 C%(OS)=0:SW%(OS)=0
3040 POKE P%(OS),ND%(I%(OS,0),I%(OS,1),I%(OS,2))
3050 POKE P%(OS)+37888,15
3060 FOR D=1 TO 2:DZ=3-D
3070 POKE P%(OS)+PV%(D),IC%(I%(OS,D),O%(OS,DZ),DZ)
3080 NEXT
3090 FOR OD=0 TO 2
3100 GOSUB 4000
3110 NEXT
3120 RETURN
3198 REM REPLACE
3200 IF Q2<>8 THEN GOSUB 10:GOTO 3200
3201 POKE GATE,33
3202 FOR K=-25 TO 25:POKE FQ,5+ABS(K):NEXT
3210 C%(OS)=PLAYER
3215 SW%(OS)=SGN(T%(OS,C%(OS)))
3220 FOR D=0 TO 2
3230 O%(OS,D)=C%(OS)*SW%(OS)*SGN(L%(OS,D))
3240 NEXT
3250 POKEP%(OS),SC%(C%(OS),SW%(OS))
3260 POKE P%(OS)+37888,8
3270 GOTO 3060
3498 REM RESTART
3500 POKE FL,0
3505 FORK=17408TO18431:POKEK,0:NEXT
3510 FOR S=1 TO 121
3520 POKE P%(S)+37888,8:POKE P%(S),45
3525 C%(S)=0:SW%(S)=0
3526 FOR J=0 TO 2
3527 I%(S,J)=0:O%(S,J)=0:T%(S,J)=0
3528 NEXT
3530 NEXT
3540 FOR COL=1 TO 2
```

```
3550 FOR K=1 TO 18
3560 POKE P%(SQ%(K,COL)),45+COL
3570 C%(SQ%(K,COL))=COL
3580 NEXT:NEXT
3590 POKECH,(PEEK(CH)AND240)OR8
3600 Q1=2:GOTO 2600
3998 REM SWITCHING
4000 Q=0
4010 S=L%(OS,OD)
4015 IF C%(OS)=0 THEN C=I%(OS,OD):GOTO 4030
4020 C=C%(OS)*SW%(OS)
4030 D=OD
4100 IF S=0 THEN 4500
4105 POKE GATE,33:POKE FQ,0
4110 I=I%(S,D)
4120 IF C=I THEN 4500
4130 T%(S,C)=T%(S,C)+1
4140 T%(S,I)=T%(S,I)-1
4150 I%(S,D)=C
4160 DZ=SGN(D)*(3-D)
4300 IF C%(S)>0 THEN 4370
4305 O%(S,D)=C*SGN(L%(S,D))
4310 I0=I%(S,0):I1=I%(S,1):I2=I%(S,2)
4335 POKE P%(S)+PV%(D),IC%(C,O%(S,DZ),DZ)
4336 IF D>0 THEN POKE P%(S)+PV%(DZ),IC%(I%(S,DZ),O%(S,D),D)
4340 POKE P%(S),ND%(I0,I1,I2):POKE FQ,10
4350 POKE P%(S)+37888,8+7*SGN(I0+I1+I2)
4360 LS=S:S=L%(S,D):GOTO 4100
4370 SW=SGN(T%(S,C%(S)))
4380 IF SW=SW%(S) THEN POKE P%(S)+PV%(D),IC%(C,O%(S,DZ),DZ):GOTO 4500
4385 SW%(S)=SW
4386 NC=C%(S)*SW
4387 FOR DD=0 TO 2:O%(S,DD)=NC*SGN(L%(S,DD)):NEXT
4388 IF D=0 THEN POKE P%(S)+PV%(D),IC%(C,O%(S,DZ),DZ)
4389 FOR DD=1 TO 2:DZ=SGN(DD)*(3-DD)
4390 POKE P%(S)+PV%(DD),IC%(I%(S,DD),O%(S,DZ),DZ)
4391 NEXT
4395 SW%(S)=SW:POKEP%(S),SC%(C%(S),SW):POKE FQ,5+15*SW
4400 Q=Q+1
4410 QS%(Q)=S:QC%(Q)=NC:QD%(Q)=-1
4500 IF Q=0 THEN POKE GATE,0:RETURN
4510 QD%(Q)=QD%(Q)+1
4520 IF QD%(Q)=3 THEN Q=Q-1:GOTO 4500
4530 C=QC%(Q):D=QD%(Q):LS=QS%(Q):S=L%(LS,D)
4570 GOTO 4100
5500 DATA 32,95,105,160,223,233
5510 DATA BDDDDDDCFEAABCAAAFEBDDDDDDCFEAA
5520 DATA AAADDAAFCBEAEFAAFCBEBDDAFCABEAA
5530 DATA AAADDAFDDDCADDAFDDDDEBDFCFAABEA
5540 DATA AAABCFDCABDEBCFDCAABDEBCFDDDDDE
5600 DATA 0,0,60,60,60,60,0,0,0,0,12,60,60,60,60,48,0
5620 DATA 0,48,60,60,60,60,12,0,0,0,192,240,240,240,240,48,0,0
6010 DATA 3,15,15,15,15,12,0,0,0,0,60,60,60,60,60.
7000 DATA 60,60,0,0,0,0,0,60,60,3,3,3,195,195,192,192,192
7020 DATA 192,192,192,195,195,3,3,3,60,60,60,60,60,0,0,0,0
8010 DATA 0,0,48,240,240,240,240,192,0,0,12,15,15,15,15,3
9000 DATA 0,0,60,60,60,60,0,0,0,85,85,85,85,85,85,85,85
9020 DATA 170,170,170,170,170,170,170,170
9030 DATA 85,85,125,125,125,125,85,85
9040 DATA 170,170,190,190,190,190,170,170
9100 DATA -2,1,1,0,0,2,0,1,2,1,-1,1,2,-1,-1,0
9140 DATA 0,-2,0,-1,-2,-1,1,-1,45,45,46,48,47,49,-40,-1,1
9370 DATA 0,0,0,1,1,1,2,2,2,27,37,38,30,40,41,33,43,44,27,39,42
9440 DATA 28,31,34,29,32,35,255,255,240,2,213,85,112,2,223,255,112,2
9503 DATA 220,3,112,8,223,255,112,2,213,85,112,2,255,255,240,2
9505 DATA 213,85,112,2
9507 DATA 0,0,0,1,0,0,0,6,3,252,0,8,0,0,0,7,0,0,0,4
9521 DATA 15,255,0,2,13,87,0,8,15,255,0,2,0,0,0,5
10000 POKE56578,PEEK(56578)OR3
10010 POKE56576,(PEEK(56576)AND252)OR3
10020 POKE53272,21
10025 POKE53270,200
10030 PRINT"[WHT]";
```

ATTACK OF THE SOFTWARE PIRATES

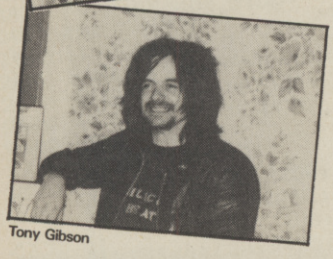
NAME: T. GIBSON & M. HARRISON

GAMES: JAMMIN', BOZO'S NIGHT OUT, SEASIDE SPECIAL, GHETTO BLASTER AND SEVERAL ARCADE GAMES.

AGE: 37 "AM I TOO OLD FOR COMMODORE USER?"

Like many top names in the games business Tony Gibson — or 'Gibbo' as he prefers to be called — learned his trade in the arcade business, programming the pay-per-play cabinets that have now largely disappeared from our pubs and clubs.

Mark Harrison.



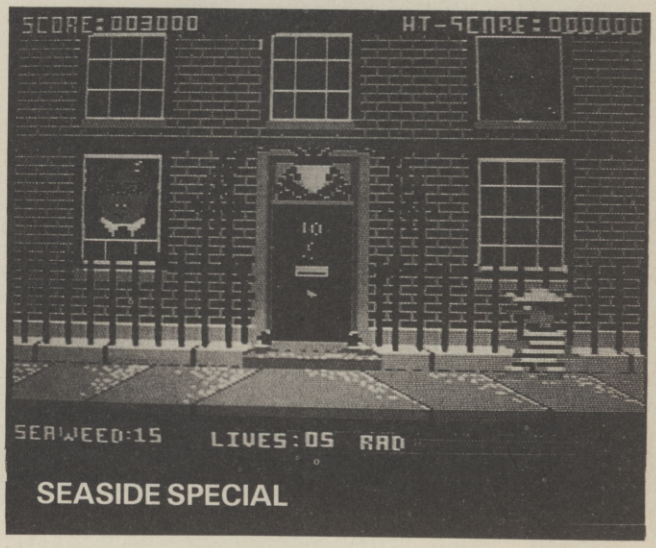
Tony Gibson

In those pre-micro days he rubbed shoulders with the authors of the arcade games Gyruss and Blue Print. At that time they were working for a company called Zylec — whom they left shortly afterwards to set up their own firm — Ashby Computer Graphics. ACB are now behind the best known games company in the UK — Ultimate Play the Game.

In the meantime Tony's firm were having their own success in the arcades. They developed an arcade game called Master Blaster — which had three separate games in one cabinet. One of these was The Pit — which later turned up marketed by an American games firm called HES.

Towards the end of 1983 Tony Gibson's boss — Andy Walker — had decided to make his own move into the booming home games market and set up Taskset. Gibbo was contracted to write three games. "I spent the first six weeks just playing around with the 64, trying things out, finding out what it could do and what it couldn't.

"I wanted to break all the rules with my first 64 game. I was fed up with writing games



SEASIDE SPECIAL

Attack of the Software Pirates — for the Commodore 64 by T Gibson & M Harrison

```
1 SPZ=10241:S=53248:POKESPZ-1,0:COL=255:POKECOL,2:Q=1:LI=3:DD=0
2 FL=10368:UP=FL+3:DN=FL+6:LF=FL+9:RT=FL+12:SN=251:SX=252:O=1416
3 DEF FN A(X)=PEEK(52481)*256+PEEK(52480)-54272:SE=1177:DE=SE+79:DK=0
100 GOSUB2000:GOSUB1000
101 GOSUB3000:SYSFL:GOSUB4000:GOSUB3000:GOSUB4000:GOSUB4000:GOSUB3000:GOSUB4000
102 GOTO101
1000 PRINT"[CLS][WHT][2SPC]-[2SPC]ATTACK OF THE SOFTWARE PIRATES[2SPC]-"
1010 A$="[REV][RED][24SPC]"
1020 B$="[REV][GRN][2SPC][YEL][2SPC][RED][2SPC][GRN][2SPC][YEL][2SPC][RED][2SPC]
[GRN][2SPC][YEL][2SPC][RED][2SPC][GRN][2SPC][YEL][2SPC][RED][2SPC]"
1030 C$="[REV][RED][G>U][G>I][G>U][G>I][G>U][G>I][YEL][G>U][G>I][G>U][
G>I][G>U][G>I][G>U][G>I][GRN][G>U][G>I][G>K][G>J][G>K][G>J][G>K][G>J][
1040 D$="[REV][RED][G>J][G>K][GRN][G>J][G>K][G>J][G>K][G>J][G>K][YEL][G>J][G>K][G>J][
G>K][G>J][G>K][G>J][G>K][G>J][G>K][G>J][G>K][G>J][G>K][G>J][G>K]"
1050 PRINTC$:PRINTD$:FORI=1TO5:PRINTA$:PRINTA$:PRINTB$:PRINTB$:NEXTI
1060 PRINT"[REV][GRN][8SPC][YEL][8SPC][RED][8SPC]"
1070 PRINT"[REV][GRN][8SPC][YEL][8SPC][RED][8SPC][HOM]"
1080 FORI=0TO25:PRINT"[CR]";:NEXTI:PRINT"[WHT][2CD]SCORE:00000"
```

to other people's specifications. Jammin' enabled me to express myself more than anything I had done before. I wanted a game that sounded good as well as one that played well."

The music for Jammin' was written by Mark Harrison, Gibbo's partner and co-author of his games. "Mark borrowed heavily from various sources to put together a really nice collection of tunes." Good sound and graphics are the hallmarks of a Gibbo-Harrison game though Tony also points out that there is also a personal trademark in all of his games.

"I put a large amount of green, red and yellow on screen ... this is my trademark. It's because I am a reggae fan and the colours represent the music."

Gibbo's liking for music was how he met Mark Harrison. "I put together a computerised performance. Trouble was I drank so much lager I forgot how to operate the machine. It was very embarassing at the time."

Mark Harrison was in the club that night — playing guitar in his own band — Generator. A conversation struck up, a relationship developed, and a partnership was born that has produced some of the most fun and interesting games yet for the 64.

The firm worked well — and Taskset were very quickly on to another hit from Gibbo-Harrison — *Bozo's Night Out*. "Young kids seem to love Bozo ... I think it's the idea of a grown up stumbling, drunkenly around the screen that amuses them," says Gibson, clearly amused by the notion himself.

Mark and Tony were now working well as a partnership. Both had clear areas of expertise — Gibson the programmer, Harrison designing the graphics with the aid of a Koala Pad graphics tablet.

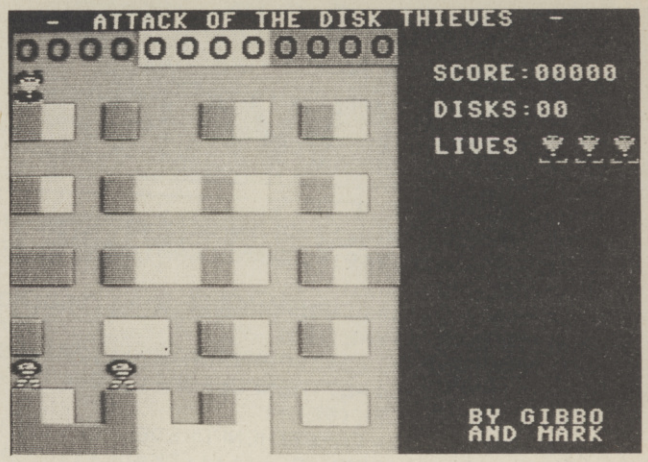
Their next project was one that appealed to them both because of their political beliefs — they are both members of the Ecology Party. It was to be a protest game about nuclear energy — inspired by the recent accident at Sellafield in which radioactive substances leaked.

Royalties were to be donated to Greenpeace, the cassette inlay was to carry a hard-hitting statement of the programmers' views about nuclear power, everything was ready to go.

But there was one hitch: Tony Gibson's relations with Taskset were already at a low ebb. He was now working at home because he found he could not work in the atmosphere at the office. "They had Radio One blaring out all day ... it was driving me up the wall."

But the real disagreement was over the game itself — *Seaside Special*. Taskset were reluctant to emphasise all the controversial elements in Gibson and Harrison's game. In the end Taskset launched Seaside Special without any references to Greenpeace or Sellafield. Tony Gibson and Mark Harrison are now working for themselves.

The next game from this stable is called *Ghetto Blaster*. "I got the idea for the game whilst laying in the sun in Battersea Park in London when this guy walked past me with a ghetto blaster blaring out. It made me want to dance."



The game features a split screen with a ghetto blaster in the bottom portion with the cassette turning. The top shows the play area. The action takes place in Funkytown — where you have to collect ten demo tapes and get them safely to your record company, avoiding the nasties sent out by rival record companies en route.

Now that you've read about the authors of Seaside Special, Bozo's Night Out, and Ghetto Blaster play their game. Written exclusively for Commodore User — Attack of the Software Pirates is an all-action game for your 64. Don't just sit there — key it in now.

Attack of the Software Pirates is one of the shorter listings in the Book of Celebrity Games.

But don't take the brevity of the listing as an indication of something lacking in the game.

The objective is to get the disks from the top of the screen to the bottom, and deposit them in their correct colour coordinated positions.

The first row of disks you will find fairly easy. The second colour will get tougher as the software pirates are out to stop you.

If a pirate should catch you he will automatically steal your disk and place it back at the top of the screen.

You are going to enjoy playing Attack of the Software Pirates. Its easy to enter and not very long — so what are you waiting for.

```
1090 PRINT"[2CD][14CL]DISKS:00[2CD][8CL]LIVES"
1100 PRINT"[15CD][12CL]BY GIBBO[CD][8CL]AND MARK[HOM]"
1998 POKES+21,231:RETURN
2000 POKES+21,0:POKES+32,0:POKES+33,0:PRINT"[CLS]":FORI=0TO11:PRINT:NEXTI
2002 PRINT"[YEL][12SPC]PLEASE WAIT"
2003 FORQ=1TO2:W=0:FORI=1TO16:FORP=0TO1:READA:POKESPZ+Y+W+P,A:NEXTP
2004 POKESPZ+Y+W+P,0:W=W+3:NEXTI:W=W-3:FORI=1TO16:POKESPZ+Y+W+P+I,0:NEXTI
2005 Y=Y+64:W=W+3:NEXTQ:M=2040
2006 POKEM,161:FORI=M+1TOM+4:POKEI,160:NEXTI:POKES,16:POKES+1,74
2008 FORI=S+39TOS+46:POKEI,0:NEXTI:POKES+28,255:POKES+37,1:POKES+38,10
2009 POKEM+5,161:POKEM+6,161:POKEM+7,161:POKES+16,224:POKES+15,101
2010 POKES+10,15:POKES+11,101:POKES+12,32:POKES+13,101:POKES+14,49
2011 POKES+2,16:POKES+3,202:POKES+4,64:POKES+5,202:POKES+6,112:POKES+7,202
2012 POKES+8,160:POKES+9,202
2020 X=52480:FORI=0TO9:READF:POKEX+I,F:NEXTI
2500 Z=10368:FORI=0TO277:READD:POKEZ+I,D:NEXTI:RETURN
3000 J=PEEK(56320):POKESX,0:POKESN,0
3020 IFJ=125THENSYSDN
3030 IFJ=126THENSYSUP
3040 IFJ=119THENSYSRT
3050 IFJ=123THENSYSLF
3055 POKE53278,255:E=PEEK(53278)AND1
3057 IFE=1ANDCAR=1THENGOSUB5000
```

ATTACK OF THE SOFTWARE PIRATES

```
3060 IFPEEK(FNA(X))=213ANDCAR=0ANDPEEK(53249)<>234THENCAR=1:GOSUB3900
3065 IFPEEK(53249)=234ANDCAR=1ANDPEEK(FNA(X))<>213THENCAR=0:GOSUB3950
3070 RETURN
3900 POKEFNA(X),160:POKEFNA(X)+1,160:POKEFNA(X)+40,160:POKEFNA(X)+41,160
3901 VV=FNA(X):RETURN
3950 POKEFNA(X),213:POKEFNA(X)+1,201:POKEFNA(X)+40,202:POKEFNA(X)+41,203
3960 IFPEEK(SE)=57THENPOKESE-1,PEEK(SE-1)+1:POKESE,48:GOTO3980
3970 POKESE,PEEK(SE)+1
3980 IFPEEK(DE+1)=57THENPOKEDE,PEEK(DE)+1:POKEDE+1,48::DK=DK+1:GOTO3999
3990 POKEDE+1,PEEK(DE+1)+1:DK=DK+1:IFDK=4THENGOSUB5500
3999 RETURN
4000 Q=Q+1:IFQ=5THENQ=1
4001 POKE53278,255:POKESN,Q:POKESX,Q*2:GX=PEEK(53248):GY=PEEK(53249)
4120 BX=PEEK(53248+(Q*2)):BY=PEEK(53249+(Q*2))
4125 IFCAR=0ANDQ<3THENGOTO4170
4126 IFCAR=1ANDQ=4THENFORGH=1TO2
4130 IFBX<GXTHENSYSRT
4140 IFBX>GXTHENSYSLF
4150 IFBY<GYTHENSYSDN
4160 IFBY>GYTHENSYSUP
4170 E=PEEK(53278)AND1
4180 IFE=1ANDCAR=1THENGOSUB5000
4181 IFCAR=1ANDQ=4THENNEXTGH
4999 RETURN
5000 LI=LI-1:CAR=0:POKEVV,213:POKEVV+1,201:POKEVV+40,202:POKEVV+41,203
5010 POKE53269,PEEK(53269)AND(2^(5+LI))-1:IFLI=0THEN5600
5020 RETURN
5500 DD=DD+DK:DK=0:IFDD=4THENCC=30:POKECOL,5:POKE53269,PEEK(53269)OR8
5520 IFDD=8THENCC=158:POKECOL,7:POKE53269,PEEK(53269)OR16
5530 IFDD=12THENGOTO7000
5545 PRINT"[HOM]":A$="[REV][24SPC]"
5551 PRINT:PRINTCHR$(CC):FORI=1TO4:PRINTA$:PRINTA$:PRINT:PRINT:NEXTI
5571 PRINTA$:PRINTA$:PRINTA$:PRINTA$;"[HOM]":RETURN
5600 FORI=0TO100:POKE53287,PEEK(53287)+IAND15:NEXTI:POKE53269,0
5601 FORI=0TO50:PRINT:NEXT
5602 PRINT"[14SPC]GAME OVER"
5603 PRINT"[11SPC]ANOTHER GAME? Y/N"
5610 FORI=1TO11:PRINT:NEXT
5620 GETA$:IFA$=""THEN5620
5630 IFA$="Y"THENRUN
5640 IFA$<>"N"THEN5620
5650 END
5999 RETURN
7000 FORI=0TO06:PRINT:NEXT:PRINT"[7CR]YOU WIN[HOM]"
7001 FORI=0TO30:FORFL=0TO3:POKE53288+FL,PEEK(53288+FL)+1AND15:NEXTFL:NEXTI
7002 POKE53269,0:GOTO5601
10000 DATA0,0,0,0,2,160,10,168,43,250,38,218,47,254,42,170
10010 DATA9,88,2,160,0,192,2,160,5,20,8,8,4,4,40,10
10020 DATA0,0,2,10,10,8,42,170,43,250,38,230,47,254,15,252
10030 DATA3,240,3,240,10,104,42,170,42,106,42,170,58,171,63,63
10040 REM
10050 DATA120,216,248,218,254,218,4,219,10,219
11000 DATA76,143,40,76,249,40,76,23,41,76,53,41,76,83,41,169
11010 DATA200,133,253,169,216,133,254,32,151,224,165,141,41,15,201,12
11020 DATA16,245,141,6,204,32,151,224,165,141,41,7,201,5,16,245
11030 DATA170,224,0,240,14,165,253,24,105,160,133,253,144,2,230,254
11040 DATA202,208,238,174,6,204,224,0,240,14,165,253,24,105,2,133
11050 DATA253,144,2,230,254,202,208,238,32,151,224,165,141,41,3,201
11060 DATA3,240,245,168,185,246,40,160,0,145,253,200,145,253,160,40
11070 DATA145,253,200,145,253,96,2,5,7,32,130,41,56,233,80,133
11080 DATA253,176,2,198,254,32,141,41,208,12,32,115,41,185,1,208
11090 DATA56,233,16,153,1,208,96,32,130,41,24,105,80,133,253,144
11100 DATA2,230,254,32,141,41,208,12,32,115,41,185,1,208,24,105
11110 DATA16,153,1,208,96,32,130,41,56,233,2,133,253,176,2,198
11120 DATA254,32,141,41,208,12,32,115,41,185,0,208,56,233,16,153
11130 DATA0,208,96,32,130,41,24,105,2,133,253,144,2,230,254,32
11140 DATA141,41,208,14,32,115,41,185,0,208,24,105,16,153,0,208
11150 DATA144,0,96,165,253,157,0,205,165,254,157,1,205,165,251
11160 DATA10,168,96,166,252,189,1,205,133,254,189,0,205,96,160,0,177
11170 DATA253,41,15,197,255,96
```

BRICK BUSTERS

NAME: RICHARD LEINFELLNER
GAMES: THE EVIL DEAD, CAULDRON.
AGE: 19

I first met Richard Leinfellner at the London Dungeon amid the models of horrific medieval torture. A fitting place for the launch of Richard's first game — the *Evil Dead*. But the setting was fitting in more than one way for Richard didn't look out of place himself with his black leather jacket — complete with frills and studs.

Since the launch of Evil Dead — not the biggest success of all time — a lot has happened to Richard. Not least he has changed his image. With cropped hair, and heavy Austrian accent, he now looks more like a respectable professor — rather than the leathered biker of his Evil Dead days — "I still have the motorbike though," he is quick to point out.

Evil Dead did not repeat the cult success of the film on which it was based. "It was my first game," says Leinfellner, with a completely disarming frankness. "Although it may not be the best game of all time it is quite advanced technically."

The criticism of Evil Dead becomes completely insignificant when you play Richards' new game — *Cauldron*. Palace spent a long time perfecting this one — and it shows. The arcade adventure in which you are a witch seeking a golden broom-stick is one of the guaranteed smash hits of '85.

So what caused the turnaround? "We now work in a team, the graphics are designed by our full time artist Steve, and the game play is worked out in a team. Every single part of the play has been discussed in great detail to give the best possible game play".

When I went to see Richard at Palace's dingy offices — in an old cinema near King's Cross Station, he was still working on Cauldron. "See that — a green key by the green door . . . I specified that no keys were to be left by the doors of the same colour," he said, interrupting our conversation, to tick off a fellow programmer.

I immediately got the impression that the attention to detail in Cauldron was painstaking. And talking of pains, playing the game is pretty painful too. It IS difficult — after a whole Easter weekend playing the game with a friend we still only managed to get one of the ingredients for the spell into the witches cauldron.

Richard makes no apologies for the toughness of Cauldron. "Let's face it, games players have had a lot of practice over the last couple of years. New games need to be tough and challenging if they are to hold interest. Cauldron is difficult but it is also fun to play and you can enjoy it even if you don't master it after your first few goes. We want people to be still enjoying the game after a year, or even after two".

Richard Leinfellner's first computer experience was at Heathlands Comprehensive in Hounslow, London. "We had a terminal which plugged us into a mainframe. It was infuriating because it was constantly ordering you to log off in five minutes . . . I lost so many programs that way."

When Heathlands got their own computer — a 380Z — Richard was given the job of setting it up, organising interfaces for printers, and teaching the teachers how to use it.

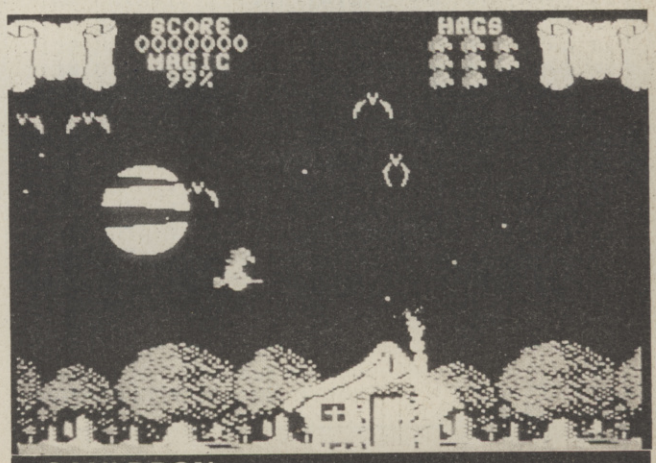
Like so many top games writers Richard is critical of computer studies at school. "I did the 'O' level but my school did not do the 'A' level . . . it's useless anyway".

By the time Richard left Heathlands — with 'A' levels in Physics, Chemistry, Maths, and German — he was already a competent machine-code programmer.

The German 'A' level was an easy way of gaining a fourth GCE for Richard, who was born in Vienna, and speaks German fluently.

So what happens after Cauldron? "A holiday . . . I'm going to Austria to see my family. We have at least a dozen ideas for another game, but nothing has been finalised yet".

And what advice does Richard Leinfellner have for budding computer whizz kids? "Practice . . . you just have to keep at it to learn all about you machine and get the most out of it".



CAULDRON

Brickbusters is a new variation on that old favourite Breakout. Breakout is a bit of a geriatric on the games scene these days, so Richard Leinfellner has souped it up and given it some added vitality.

Arcade addicts will know that the best way to beat Breakout is to knock a hole in the wall so that the ball can break through and devastate the top row of bricks! You'll have to devise some other method to crack Brickbusters, because the wall keeps re-arranging itself!

First type in and save the *Boot Loader* program in the first listing. If you are using the Datasette, save the program at the beginning of a cassette — you'll see why later. When you've saved Boot Loader, get rid of it by typing NEW/RETURN or switching off the computer.

Next, type in and run the *Boot Maker* program in the second listing. An error statement will be generated if you have made any errors typing in the data. If this happens, Check the data statements through carefully and make any necessary corrections.

When you've got it right you will be given the option to save to tape or disc. Tape users should save the code on the tape after the Boot Loader program. Now, switch off the computer again (or type NEW) and load the Boot Loader program you saved earlier. When run it will load the program code and execute it, presenting you with the Brickbusters screen. Nothing left to do now but plug a joystick into port 2 and bust those bricks!

Brickbusters — for the Commodore 64

by Richard Leinfellner

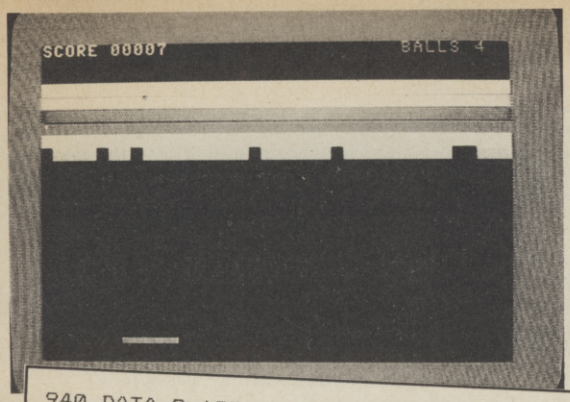
Boot Loader

```
10 IF A=1 THEN 70
20 N=1
30 PRINT"[CLS]BRICKBUSTERS LOADER"
40 INPUT"T=TAPE D=DISC";A$
50 IF A$="D" THEN N=8
60 A=1:LOAD"BUSTERS",N,1
70 SYS 12*4096
```

Boot Maker

```
10 PRINT"[CLS]BRICK BUSTERS TAPE/DISC MAKER"
20 N=12*4096
30 READ A
40 IF A=-1 THEN GOTO 90
50 POKE N,A
60 N=N+1
70 P=P+A
80 GOTO 30
90 IF P<> 198124 THEN GOTO 140
100 INPUT"T=TAPE OR D=DISC";A$
110 IF A$="D" THEN POKE 50764,8:POKE50766,8
120 SYS 50763
130 END
140 PRINT"CHECKSUM ERROR IN DATA STATEMENT"
150 PRINT"PLEASE CHECK DATA LINES"
160 STOP
```

```
200 DATA 120,169,0,141,14,198,169,6
210 DATA 141,32,208,169,0,141,33,208
220 DATA 141,0,212,141,202,197,169,15
230 DATA 141,24,212,169,84,141,20,3
240 DATA 169,196,141,21,3,169,254,141
250 DATA 24,3,169,196,141,25,3,173
260 DATA 14,220,41,254,141,14,220,169
270 DATA 1,141,26,208,169,251,141,18
280 DATA 208,173,17,208,41,127,141,17
290 DATA 208,169,9,141,245,197,32,70
300 DATA 197,32,104,197,32,203,196,162
310 DATA 5,169,0,157,209,197,157,226
320 DATA 197,202,208,247,32,163,197,32
330 DATA 188,197,169,18,141,49,197,32
340 DATA 64,196,32,246,197,169,50,141
350 DATA 68,197,169,3,141,69,197,88
360 DATA 162,240,160,0,189,119,4,201
370 DATA 32,240,24,202,208,246,238,64
380 DATA 197,173,14,198,240,234,173,0
390 DATA 220,41,16,208,227,76,0,192
400 DATA 76,128,192,200,192,239,208,227
410 DATA 32,203,196,169,50,141,68,197
420 DATA 76,128,192,173,120,4,72,173
430 DATA 200,4,72,173,24,5,72,162
440 DATA 0,189,121,4,201,160,240,2
450 DATA 169,32,157,120,4,189,201,4
460 DATA 201,160,240,2,169,32,157,200
470 DATA 4,189,25,5,201,160,240,2
480 DATA 169,32,157,24,5,232,224,39
490 DATA 208,215,104,201,160,240,2,169
500 DATA 32,141,63,5,104,201,160,240
510 DATA 2,169,32,141,239,4,104,201
520 DATA 160,240,2,169,32,141,159,4
530 DATA 173,199,4,72,173,23,5,72
540 DATA 173,103,5,72,162,38,189,160
550 DATA 4,201,160,240,2,169,32,157
560 DATA 161,4,189,240,4,201,160,240
570 DATA 2,169,32,157,241,4,189,64
580 DATA 5,201,160,240,2,169,32,157
590 DATA 65,5,202,16,217,104,201,160
600 DATA 240,2,169,32,141,64,5,104
610 DATA 201,160,240,2,169,32,141,240
620 DATA 4,104,201,160,240,2,169,32
630 DATA 141,160,4,162,39,160,0,185
640 DATA 215,197,157,120,216,200,185,215
650 DATA 197,157,160,216,200,185,215,197
660 DATA 157,200,216,200,185,215,197,157
670 DATA 240,216,200,185,215,197,157,24
680 DATA 217,200,185,215,197,157,64,217
690 DATA 202,16,210,96,173,14,198,240
700 DATA 1,96,173,202,197,240,1,96
710 DATA 169,10,141,65,197,173,65,197
720 DATA 240,94,206,65,197,173,57,197
730 DATA 141,59,197,173,59,197,240,30
740 DATA 173,51,197,41,1,201,1,208
750 DATA 3,76,1,194,173,51,197,41
760 DATA 2,201,2,208,3,76,47,194
770 DATA 206,59,197,76,171,193,173,65
780 DATA 197,240,45,206,65,197,173,58
790 DATA 197,141,60,197,173,60,197,240
800 DATA 30,173,51,197,41,4,201,4
810 DATA 208,3,76,196,194,173,51,197
820 DATA 41,8,201,8,208,3,76,229
830 DATA 194,206,60,197,76,220,193,96
840 DATA 96,173,54,197,56,233,1,201
850 DATA 1,144,14,141,56,197,32,8
860 DATA 195,208,17,32,166,195,76,188
870 DATA 193,173,64,197,41,1,24,105
880 DATA 1,141,58,197,173,51,197,73
890 DATA 3,141,51,197,76,157,193,173
900 DATA 54,197,24,105,1,201,25,176
910 DATA 14,141,56,197,32,8,195,208
920 DATA 120,32,166,195,76,200,193,173
930 DATA 245,197,56,233,1,176,54,162
```




```
940 DATA 9,189,14,198,157,222,6,169
950 DATA 7,157,222,218,202,208,242,162
960 DATA 18,189,24,198,157,2,7,169
970 DATA 1,157,2,219,202,208,242,162
980 DATA 29,189,43,198,157,229,5,169
990 DATA 15,157,229,217,202,208,242,169
1000 DATA 1,141,14,198,96,141,245,197
1010 DATA 32,188,197,173,68,197,201,10
1020 DATA 144,6,56,233,5,141,68,197
1030 DATA 173,54,197,10,170,189,255,196
1040 DATA 133,251,189,0,197,133,252,172
1050 DATA 53,197,169,32,145,251,32,246
1060 DATA 197,169,150,141,202,197,76,140
1070 DATA 193,173,51,197,73,3,141,51
1080 DATA 197,76,157,193,173,53,197,56
1090 DATA 233,1,144,14,141,55,197,32
1100 DATA 8,195,208,6,32,166,195,76
1110 DATA 237,193,173,51,197,73,12,141
1120 DATA 51,197,76,249,193,173,53,197
1130 DATA 24,105,1,201,40,176,14,141
1140 DATA 55,197,32,8,195,208,6,32
1150 DATA 166,195,76,249,193,173,51,197
1160 DATA 73,12,141,51,197,76,206,193
1170 DATA 173,56,197,10,170,172,55,197
1180 DATA 189,255,196,133,251,189,0,197
1190 DATA 133,252,177,251,201,32,240,11
1200 DATA 201,81,240,7,201,160,240,67
1210 DATA 76,44,195,96,152,56,237,49
1220 DATA 197,176,4,105,255,73,255,240
1230 DATA 24,201,1,240,30,201,2,240
1240 DATA 34,169,10,141,1,212,169,17
1250 DATA 141,4,212,169,5,141,74,198
1260 DATA 96,169,0,141,58,197,169,1
1270 DATA 76,65,195,169,1,141,58,197
1280 DATA 76,65,195,169,2,141,58,197
1290 DATA 76,65,195,169,32,145,251,173
1300 DATA 64,197,41,1,24,105,1,141
1310 DATA 58,197,169,10,56,237,56,197
1320 DATA 170,189,231,197,141,214,197,32
1330 DATA 163,197,169,1,169,25,141,1
1340 DATA 212,169,8,141,5,212,169,243
1350 DATA 141,6,212,169,17,141,4,212
1360 DATA 169,5,141,74,198,96,173,54
1370 DATA 197,10,170,189,255,196,133,251
1380 DATA 189,0,197,133,252,172,53,197
1390 DATA 177,251,201,81,208,4,169,32
1400 DATA 145,251,173,56,197,141,54,197
1410 DATA 10,170,189,255,196,133,251,189
1420 DATA 0,197,133,252,172,55,197,140
1430 DATA 53,197,177,251,201,81,240,4
1440 DATA 201,32,208,15,169,81,145,251
1450 DATA 165,252,24,105,212,133,252,169
1460 DATA 2,145,251,96,173,0,220,73
1470 DATA 255,41,12,201,8,240,5,201
1480 DATA 4,240,31,96,173,49,197,24
1490 DATA 105,1,201,38,176,17,141,49
1500 DATA 197,32,64,196,174,49,197,202
1510 DATA 202,202,169,32,157,152,7,76
1520 DATA 3,196,173,49,197,56,233,1
```

```
1530 DATA 201,2,144,17,141,49,197,32
1540 DATA 64,196,174,49,197,232,232,232
1550 DATA 169,32,157,152,7,76,3,196
1560 DATA 170,202,202,160,4,169,226,157
1570 DATA 152,7,169,5,157,152,219,232
1580 DATA 136,16,242,96,173,17,208,48
1590 DATA 31,173,18,208,201,251,176,24
1600 DATA 169,251,141,18,208,173,17,208
1610 DATA 41,127,141,17,208,169,1,141
1620 DATA 25,208,104,168,104,170,104,64
1630 DATA 173,74,198,240,6,206,74,198
1640 DATA 76,136,196,169,16,141,4,212
1650 DATA 169,49,141,18,208,173,17,208
1660 DATA 41,127,141,17,208,173,66,197
1670 DATA 240,6,206,66,197,76,169,196
1680 DATA 173,68,197,141,66,197,32,179
1690 DATA 192,32,244,195,173,61,197,240
1700 DATA 6,206,61,197,76,192,196,173
1710 DATA 69,197,141,61,197,32,140,193
1720 DATA 173,202,197,240,3,206,202,197
1730 DATA 76,109,196,169,0,141,63,197
1740 DATA 168,185,221,197,141,67,197,238
1750 DATA 63,197,162,240,160,40,169,160
1760 DATA 157,119,4,173,67,197,157,119
1770 DATA 216,136,208,14,172,63,197,185
1780 DATA 221,197,141,67,197,160,40,238
1790 DATA 63,197,202,208,225,96,64,0
1800 DATA 4,40,4,80,4,120,4,160
1810 DATA 4,200,4,240,4,24,5,64
1820 DATA 5,104,5,144,5,184,5,224
1830 DATA 5,8,6,48,6,88,6,128
1840 DATA 6,168,6,208,6,248,6,32
1850 DATA 7,72,7,112,7,152,7,192
1860 DATA 7,18,22,6,0,20,20,20
1870 DATA 20,1,1,1,1,0,0,0
1880 DATA 0,0,0,0,0,0,162,0
1890 DATA 169,32,157,0,4,157,0,5
1900 DATA 157,0,6,157,232,6,169,0
1910 DATA 157,0,216,157,0,217,157,0
1920 DATA 218,157,232,218,202,208,225,96
1930 DATA 162,6,189,202,197,157,255,3
1940 DATA 169,1,157,255,215,202,208,242
1950 DATA 162,5,189,238,197,157,30,4
1960 DATA 169,5,157,30,216,202,208,242
1970 DATA 96,76,254,196,162,5,189,226
1980 DATA 197,201,10,176,244,9,48,157
1990 DATA 5,4,169,7,157,5,216,202
2000 DATA 208,236,96,162,5,24,189,226
2010 DATA 197,125,209,197,201,10,144,2
2020 DATA 233,10,157,226,197,202,208,238
2030 DATA 32,140,197,96,173,245,197,9
2040 DATA 48,141,37,4,169,5,141,37
2050 DATA 216,96,0,19,3,15,18,5
2060 DATA 32,0,0,0,0,0,0,1
2070 DATA 4,9,6,7,13,13,7,6
2080 DATA 9,4,1,0,0,0,0,0
2090 DATA 0,1,2,3,4,5,6,2
2100 DATA 1,12,12,19,0,0,169,1
2110 DATA 141,58,197,141,57,197,169,5
2120 DATA 141,51,197,169,22,141,54,197
2130 DATA 169,20,141,53,197,96,0,7
2140 DATA 1,13,5,32,15,22,5,18
2150 DATA 0,16,18,5,19,19,32,6
2160 DATA 9,18,5,32,20,15,32,16
2170 DATA 12,1,25,0,2,18,9,3
2180 DATA 11,2,21,19,20,5,18,19
2190 DATA 32,2,25,32,18,32,12,5
2200 DATA 9,14,6,5,12,12,14,5
2210 DATA 18,0,0,169,1,162,1,160
2220 DATA 255,32,186,255,169,7,162
2230 DATA 111,160,198,32,189,255
2240 DATA 169,0,133,253,169,192,133
2250 DATA 254,162,74,160,198,169,253
2260 DATA 32,216,255,96,66,85,83,84
2270 DATA 69,82,83,0,169,-1
```

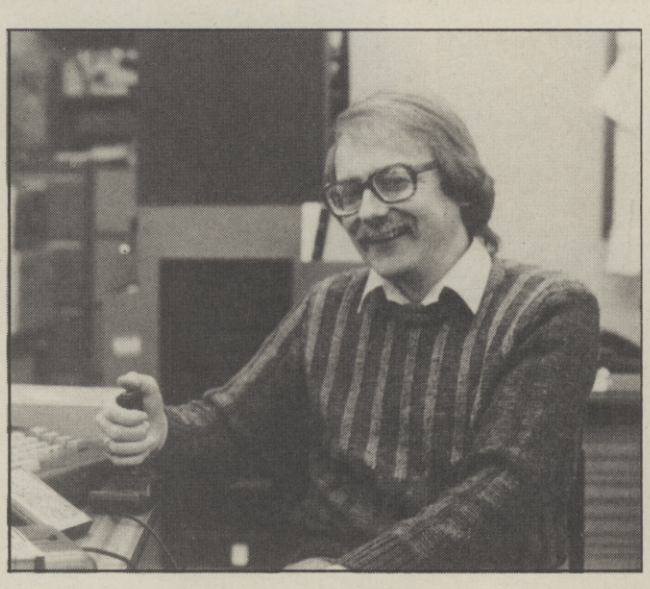
BABY BERKS

NAME: JOHN WILLIAMS
GAMES: BERKS I, II, AND III, JET BOOT JACK.
AGE: 37

I've come across some pretty silly names for computer games in my time. The likes of *Attack of the Killer Tomatoes*, *Communist Mutants from Outer Space*, even *Sheep In Space* — but nothing quite as hilarious as the idiot simplicity of *Berks*.

"Where did you get that name?" I ask, hoping for a serious reply but knowing I wasn't going to get one.

"We ring each other up (the other is Ian Ellery — CRL's resident artist and game namer) and have fairly inane (it means daft) conversations. We sort of bounce ideas off each other . . . Berks came about as a result of one of those conversations."



Jon Williams is a bespectacled 37 year old with a compulsive giggle. I don't know if he's like that all the time, or whether it was just the alcohol consumed at lunch with his pal Ian Ellery, but he seemed to find all of my questions highly amusing.

"You want me to have really weird hobbies like keeping a pet lion in my garden . . . well I don't, but you'll probably say I do anyway."

Talking of pets Jon's first computer was one — of the Commodore variety. "It was an obvious purchase for me . . . I'd bought programmable calculators before that so a computer seemed like a good idea."

"It was not easy buying a computer in those days. I had to drive up to Canterbury to get it. I learned Basic on the Pet and then machine code . . . I wrote an Invaders and a Break out."

Jon joined the local computer club — SUPA — the Southern Pet Users Association. Despite these efforts he was not happy with the Pet and ditched it for his trusty Atari — for which he wrote his first commercial piece of software. "It was called ACE — Atari Cassette Enhancer — a toolkit-type program. It was marketed by English Software, and I am told that they are still selling it".

Jon's relationship with English Software led to him writing his best known game for the Manchester firm; *Jet Boot Jack*. The musical platform game took six months of hard slog to write. "When I am working on a program it's seven days a week — ten hour days".

The long-haul 64 programming is in stark contrast with the time spent on the Berks trilogy. "Berks 1 was written in four weeks . . . and the first two weeks were just playing around with the C16 to see what it could do. I also had to write an interface program to get the program from my Atari into the C16".

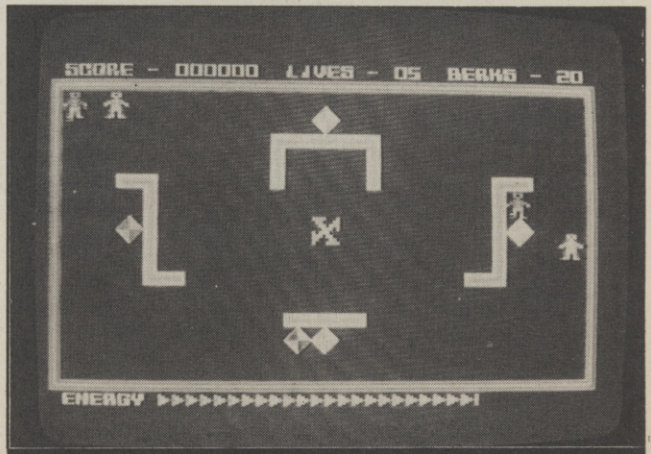
Since that first Berks game Jon's productivity rate has increased: there are now three Berks games on sale — plus the completely free game listed on these pages.

Jon's home is well equipped to help him earn his living as a full time computer games programmer. One storey of his terraced home in Littleworth is given over to computers. There are three computers in all — a C16, C64, and the Atari.

Jon does not share the view that the C16 is a hopeless machine. "It could easily have been better but it does have its good points." Such as? "The Basic is excellent, very sophisticated and easier to use . . . if the 64 had that it would be brilliant."

Berks III completes Jon's work on the C16 "I expect my next project will be for the 64 but nothing has been confirmed yet. I am hoping the new Atari computer takes off . . . I'd love to write a game for that".

And what does Williams think of hackers — jail 'em or bail 'em? A serious look crept over Jon's face — the first time that afternoon, "I don't think the problem is as serious as everyone seems to think. Personally, I think hacking is pointless".



BERKS

Baby Berks — for the Commodore 64 by Jon Williams

Baby Berks is a fast action, hundred per cent machine-code arcade game. We've decided to take advantage of the C16's inbuilt monitor, TEDMON, to enter it. If you haven't used the monitor before be sure to read the instructions for entering carefully.

The game listing is in the form of a 'hex dump' — simply a listing of the contents of the C16's memory locations. The address is given on the left-hand side followed by the eight bytes of code which occupy the next eight memory locations.

The numbers are not decimal, but are represented in hexadecimal (base sixteen). If you udnerstand the hexadecimal system so much the better, it's not important if you don't, just enter the numbers exactly as you find them in the listing.

First enter the monitor by typing *MONITOR/RETURN*. The screen display should now show the contents of the C16's internal registers. Next type *F 1400 2BFF 0/RETURN*.

This instruction tells TEDMON to fill the block of memory we are going to use with zeros. This is not essential as you'll be overwriting these locations when you type in the program. It's just that when you switch on the computer the memory is full of garbage and this can make program entry confusing.

Now to start entering the program. The code starts at location $1400 (the $ stands for hex). Type in *M 1400/RETURN*. The display will now show twelve lines of data, each containing eight bytes of memory, with the address on the left-hand side — the same format as in our listing. Ignore the characters on the far right of the screen.

To enter the code, just position the cursor over a line of information and enter the values from the listing. When you have entered all eight bytes, press RETURN and continue with the next line. When you have entered all twelve lines, press M/RETURN.

Another twelve lines will now appear on the screen. You will notice that the first of these is the last one you entered on the previous screen. Enter the next eleven lines of data and continue in this manner until the whole listing is entered.

If you make a mistake, move the cursor to the bottom of the screen, type M, the address of the line where the mistake occurred and RETURN.

Of course, you don't have to enter the whole thing in one go. To save what you've typed in so far, type *S "DATA1",01,1400,1800*.

Where:

S is the command for save.

DATA1 can be any file name.

01 is the device number (change to 08 for disc).

1400 is the start address.

1800 is the end address and will obviously vary, depending on how much code you have entered.

To reload the data type *L "DATA1",01, (08 for disc)*. When you have typed in the whole listing save it by typing *S "FINAL",01,1400,2BFF* (again, disc users change the 01 to 08).

ERROR CHECKING

That's the hard graft out of the way. To exit the monitor type X/RETURN and you will be returned to Basic. Now type NEW/RETURN and enter and run the Check Sum Basic listing.

This program will check for any errors in the machine-code you have just entered. All being well, the program should return the message 'checksum o.k.'. If there are any errors the checksum program will tell you in which 512 byte block of memory they occur.

Then it's simply a matter of re-entering the monitor and examining the code (using M) until you find the mistake. The checksum program will still be in memory, so run it again to see if you have eliminated all of the errors.

When all the checksums are o.k., type NEW/RETURN. You are now ready to enter the final piece of code which runs the program:

```
1000 00 21 10 0A 00 9E 20 36
1008 31 34 34 3A 8F 20 2A 2A
1010 2A 20 42 41 42 59 20 42
1018 45 52 4B 53 20 2A 2A 2A
1020 00 00 00 00 00 00 00 00
```

Do this in the same way you entered the main code, i.e., using the monitor, type M 1000/RETURN and modify the displayed code. The whole program must now be saved. Type in *S"BABY BERKS", 01, 1000, 2BFF/ RETURN* (change the 01 to 08 for disc).

Just to be on the safe side, take two copies. To load the program from 'cold' type in *LOAD"BABY BERKS"* in the usual way.

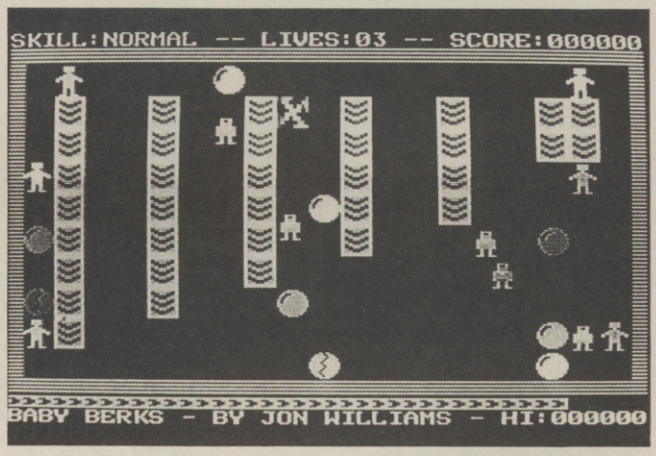
GAME INSTRUCTIONS

The game can be played either using the keyboard or a joystick plugged into port 2. The keyboard controls are: Left = A, Right = S, Up = Return, Down = Shift and Fire = Space.

To fire, you must press a direction key at the same time as the space-bar.

The object of the game is to destroy the Baby Berks as they hatch from their eggs. Watch out for the Big Berks, who will home in on your tank and try to destroy it. You can stun the Big Berks for a while by firing at them.

In all, there are sixteen screens of action — enough to keep you occupied for many hours of Berk-zapping fun. And well worth the effort of typing all that code!




```
1400 00 00 00 00 00 00 00 00
1408 00 00 00 FF FF 00 00 00
1410 18 18 18 18 18 18 18 18
1418 03 07 0E 1C 38 70 E0 C0
1420 C0 E0 70 38 1C 0E 07 03
1428 00 00 00 00 0F 0F 0E 0E
1430 00 00 00 00 F0 F0 B0 B0
1438 0E 0E 0F 0F 00 00 00 00
1440 B0 B0 F0 F0 00 00 00 00
1448 00 00 0F 0F 0E 0E 0E 0E
1450 00 00 F0 F0 B0 B0 B0 B0
1458 0F 0F 00 00 00 00 00 00
1460 F0 F0 00 00 00 00 00 00
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BABY BERKS

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2460 64 24 A0 07 EA 20 32 25
2468 C6 11 F0 03 4C 27 24 20
2470 D6 25 A9 3B 20 1F 25 A2
2478 0A 20 46 1A CA D0 FA 8E
2480 06 FF A9 96 85 20 A2 0A
2488 20 46 1A CA 10 FA AD 2A
2490 04 38 F8 E9 01 8D 2A 04
2498 D8 F0 03 4C FE 23 20 A1
24A0 25 20 39 1A A0 0B A9 3E
24A8 99 9E 0D 99 EE 0D B9 0C
24B0 29 99 C6 0D A9 57 99 9E
24B8 09 99 EE 09 88 10 E7 8D
24C0 C6 09 8D D1 09 20 46 1A
24C8 A9 1B 8D 06 FF A9 96 85
24D0 48 AD 12 FF 29 FC 8D 12
24D8 FF A9 B4 85 11 A0 09 A5
24E0 22 29 07 09 51 99 C7 09
24E8 88 10 FA 20 46 1A A4 48
24F0 F0 16 88 84 48 F0 0E 98
24F8 8D 0E FF 8D 0F FF 4A 4A
2500 4A 4A 09 30 AB 8C 11 FF
2508 C6 11 D0 D1 20 D6 25 A9
2510 00 8D 06 FF A2 0A 20 46
2518 1A CA 10 FA 4C 4C 18 29
2520 7F 09 08 A0 00 91 04 C8
2528 91 04 A0 28 91 04 C8 91
2530 04 60 A0 07 B9 50 00 D0
2538 04 88 10 F8 60 A0 07 B6
2540 50 F0 5A 84 17 20 4F 1E
2548 A0 00 B1 02 C9 05 B0 03
2550 98 91 02 A4 17 B9 5A 00
```

BABY BERKS

```
2558 18 7D 8B 27 99 5A 00 30
2560 25 C9 18 B0 21 B9 64 00
2568 18 7D 9B 27 99 64 00 30
2570 15 C9 28 B0 11 20 4F 1E
2578 A0 00 B1 02 F0 11 C9 13
2580 90 19 C9 19 B0 15 A4 17
2588 A9 00 99 50 00 F0 0C A4
2590 17 BE 0A 28 BD FA 27 A0
2598 00 91 02 A4 17 88 10 9F
25A0 60 AD 23 04 CD 26 04 F0
25A8 15 90 12 AD 23 04 8D 26
25B0 04 AD 24 04 8D 27 04 AD
25B8 25 04 8D 28 04 60 AD 24
25C0 04 CD 27 04 F0 04 90 F5
25C8 B0 E1 AD 25 04 CD 28 04
25D0 F0 EB B0 D7 90 E7 A9 00
25D8 85 48 85 49 85 4A 8D 11
25E0 FF AD 12 FF 29 FC 09 03
25E8 8D 12 FF AD 10 FF 29 FC
25F0 09 03 8D 10 FF 60 A4 48
25F8 F0 3A 30 13 88 84 48 D0
2600 08 AD 11 FF 29 EF 4C 31
2608 26 B9 77 26 4C 29 26 88
2610 84 48 30 04 A0 00 F0 E5
2618 C0 BF F0 F8 C0 94 90 07
2620 20 3C 1C 09 80 D0 02 A9
2628 FF 8D 0E FF AD 11 FF 09
2630 10 8D 11 FF A4 49 F0 26
2638 88 84 49 D0 0E A9 00 85
2640 49 85 4A AD 11 FF 29 9F
2648 4C 58 26 B9 B0 26 8D 0F
2650 FF AD 11 FF 29 DF 09 40
2658 8D 11 FF 4C 76 26 A4 4A
2660 F0 14 88 84 4A F0 D6 B9
2668 97 26 09 80 8D 0F FF AD
2670 11 FF 09 20 D0 E2 60 00
2678 08 10 18 20 28 30 38 40
2680 48 50 58 60 68 70 78 80
2688 88 90 98 A0 A8 B0 B8 C0
2690 C8 D0 D8 E0 E8 F0 F8 FF
2698 FC F8 F4 F0 EC E8 E4 E0
26A0 DC D8 D4 D0 CC C8 C4 C0
26A8 BC B8 B4 B0 AC A8 A4 A0
26B0 FF FF EF DF CF BF AF 9F
26B8 8F 7F 6F 5F 4F 3F 2F 1F
26C0 0F 00 53 4B 49 4C 4C 3F
26C8 4E 4F 52 4D 41 4C 00 40
26D0 40 00 4C 49 56 45 53 3F
26D8 76 7B 00 40 40 00 53 43
26E0 4F 52 45 3F 76 76 76 76
26E8 76 76 57 57 57 57 57 57
26F0 57 57 57 57 57 57 57 61
26F8 61 54 54 54 54 54 54 54
2700 54 54 54 61 61 62 62 62
2708 62 62 62 62 62 62 62 62
2710 62 62 42 41 42 59 00 42
2718 45 52 4B 53 00 40 00 42
2720 59 00 4A 4F 4E 00 57 49
2728 4C 4C 49 41 4D 53 00 40
2730 00 48 49 3F 76 76 76 76
2738 76 76 00 62 62 62 62 62
2740 62 62 62 62 62 62 61 61
2748 67 67 67 67 67 67 67 67
2750 67 67 67 67 67 67 67 61
2758 61 66 66 66 66 66 66 66
2760 66 66 66 50 52 45 53 53
2768 00 53 50 41 43 45 40 42
2770 41 52 00 4F 52 00 54 52
2778 49 47 47 45 52 00 54 4F
2780 00 53 54 41 52 54 00 47
2788 41 4D 45 00 00 00 00 00
2790 01 FF 00 00 01 FF 00 00
2798 01 FF 00 00 00 00 00 00
27A0 01 01 01 00 FF FF FF 00
27A8 00 00 00 00 00 00 00 00
27B0 0C 04 08 00 14 1C 18 00
27B8 10 00 00 00 00 00 00 00
27C0 FF FF 00 00 FF FF 00 00
27C8 00 00 00 00 00 00 00 04
27D0 03 01 00 03 04 01 00 02
27D8 02 00 00 00 00 00 00 01
27E0 01 01 00 00 00 00 00 01
27E8 00 00 00 00 00 00 00 01
27F0 00 00 00 01 00 01 00 01
27F8 00 00 00 00 00 00 00 03
2800 04 02 00 04 03 02 00 01
2808 01 00 05 06 07 09 0A 0B
2810 0D 0E 00 01 28 29 0F 10
2818 11 12 18 19 1A 1B 22 23
2820 24 25 2A 2B 2C 2D 09 0A
2828 0B 0C 13 14 15 16 1C 1D
2830 1E 1F 26 27 28 29 0D 0E
2838 00 00 00 17 00 00 00 20
2840 00 21 00 00 00 17 00 00
2848 0D 0E 00 00 17 00 20 00
2850 21 00 17 00 00 00 09 0A
2858 0B 0C 13 14 15 16 1C 1D
2860 1E 1F 26 27 28 29 0F 10
2868 11 12 18 19 1A 1B 22 23
2870 24 25 2A 2B 2C 2D 36 37
2878 38 39 32 33 34 35 2E 2F
2880 30 31 05 06 07 08 07 07
2888 05 06 0D 13 40 3E 3C 3A
2890 38 36 34 32 30 2E 2C 2A
2898 28 26 24 20 00 02 04 07
28A0 0D 1E 1E 1D 1D 1C 1C 1B
28A8 1B 1A 1A 18 18 14 14 12
28B0 12 10 0F 0D 0C 00 00 01
28B8 01 01 02 02 02 02 04 04
28C0 04 04 06 06 06 06 08 08
28C8 08 49 4A 4B 4C 4D 4E 4F
28D0 59 5A 5B 5C 5D 5E 5F 6A
28D8 6B 6C 6D 6E 6F 01 00 FF
28E0 00 00 01 00 FF 00 12 AB
28E8 BD 4C 5E 02 02 14 14 0A
28F0 0A 01 25 01 25 01 25 00
28F8 67 63 5F 5B 68 68 68 68
2900 66 66 66 66 64 64 64 62
2908 62 60 60 60 3E 47 41 4D
2910 45 40 40 4F 56 45 52 3E
2918 05 0B 11 17 1D 44 55 46
2920 46 45 52 4E 4F 56 49 43
2928 45 4E 4F 52 4D 41 4C 45
2930 58 50 45 52 54 4D 41 53
2938 54 45 52 06 19 0C 1F 51
2940 53 55 57 59 85 86 87 74
2948 61 36 37 38 49 5C FF 28
2950 29 3B 35 36 49 2D 2E 2F
2958 30 31 44 57 6A 7D 90 91
2960 92 93 94 88 89 8A 8B 8C
2968 40 53 66 79 FF 2B 2C 3E
2970 3F 32 33 45 46 3B 4E 61
2978 68 49 5C 6F 78 8B 8C 8D
2980 8E 8F 90 91 7E FF 26 27
2988 28 29 2A 2B 2C 2D 2E 35
2990 36 48 49 55 68 74 75 87
2998 88 90 91 92 93 94 95 96
29A0 FF 15 28 19 2C 1F 32 23
29A8 36 50 63 55 68 5A 6D 87
29B0 9A 8B 9E 91 A4 95 A8 FF
29B8 09 B4 28 29 2A 2B 33 34
29C0 35 36 3B 4E 61 74 87 88
29C8 89 8A 52 53 69 6A 49 5C
29D0 6F 82 92 93 94 95 FF 17
29D8 2A 3D 4D 4E 4F 50 1A 2D
29E0 40 53 66 79 86 87 88 89
29E8 8A 8B 8C 31 32 33 34 35
29F0 36 37 44 57 6A 7D 90 A3
29F8 6D 6E 6F 70 80 93 A6 FF
2A00 14 27 3A 4D 60 73 86 99
2A08 89 76 63 50 3D 2A 17 1A
2A10 2D 40 53 66 79 69 56 43
2A18 30 1D 20 33 46 59 23 24
2A20 36 37 FF 14 3C 64 8C B4
2A28 90 6C 48 24 42 55 FF 27
2A30 28 3A 4D 60 73 86 87 2C
2A38 2D 3F 31 32 45 78 8B 8C
2A40 7E 91 90 36 37 4A 5D 70
2A48 83 96 95 FF 27 28 15 23
2A50 36 37 60 61 62 63 64 51
2A58 3E 2B 18 20 33 46 59 6C
2A60 6D 6E 6F 70 23 36 37 9F
2A68 A0 8D 8F A2 A3 FF 14 15
2A70 16 17 18 2B 3E 51 64 77
2A78 8A 99 9A 9B 9C 9D 54 55
2A80 56 67 68 69 20 21 22 23
2A88 24 33 46 59 6C 7F 92 A5
2A90 A6 A7 A8 A9 FF 14 15 16
2A98 27 3A 22 23 24 37 4A 73
2AA0 86 99 9A 9B A7 A8 A9 83
2AA8 96 66 53 40 41 42 43 44
2AB0 57 6A FF 14 15 16 17 18
2AB8 27 3A 4D 2B 3E 51 64 77
2AC0 8A 20 21 22 23 24 37 4A
2AC8 5D 33 46 59 6C 7F 92 FF
2AD0 28 29 2A 2B 2C 2D 2E 2F
2AD8 30 31 32 55 68 8B 8C 8D
2AE0 8E 8F 90 91 92 93 94 95
2AE8 36 49 5C 6F 82 3B 4E 61
2AF0 74 87 FF 3A 3B 3C 3D 2A
2AF8 4D 60 73 74 75 76 89 2D
2B00 40 53 66 79 8C 8D 8E 8F
2B08 90 7D 6A 57 44 31 34 47
2B10 48 49 4A 5D 70 83 82 81
2B18 80 93 FF 00 AF 9F B5 FE
2B20 FF 7A EB 68 79 71 7B 75
2B28 79 71 76 72 7A 78 7B 50
2B30 77 DA B3 BD E5 BF FF AF
2B38 FA BA A3 EE A9 A3 EB E3
2B40 08 00 00 00 00 08 01 08
2B48 02 00 00 00 04 00 00 00
2B50 FF 7F FF FB F3 77 FF F7
2B58 FF FF FF FF FF 7F FF 7F
2B60 00 02 00 08 00 00 00 01
2B68 00 08 00 80 00 01 00 AF
2B70 70 FB F3 FF FF FF 7F FF
2B78 7B FF F3 FF FF FF 7B FF
2B80 E4 10 72 61 42 70 60 72
2B88 60 74 60 72 62 60 60 28
2B90 A1 AF AF CF A3 A7 AF 4D
2B98 E3 EF A7 C7 87 A7 EB ED
2BA0 D1 31 70 49 72 78 60 68
2BA8 75 42 73 72 E3 76 76 40
2BB0 EE AF AF E3 E2 A5 A9 A6
2BB8 F7 A9 A5 8E 81 A6 EE 2B
2BC0 21 80 25 00 80 00 04 00
2BC8 84 00 04 00 06 00 88 00
2BD0 FF F7 FF FB F7 FB FF F5
2BD8 F7 F7 FF F7 FB F7 FF 7B
2BE0 00 B6 00 0A 80 01 00 80
2BE8 00 A1 80 82 00 A4 00 A7
2BF0 D0 F7 F5 FF F3 FF F7 FF
2BF8 F7 FF FF FF F7 F7 F3 4D
```

CHECK SUM PROGRAM

```
 10 BERR=0:RESTORE:PRINTCHR$
    (147)
100 SUM=0
110 READ START$,FINISH$,CHECK
120 IF FINISH$="LAST"
    THEN 1000
130 FOR I=DEC(START$)
    TO DEC(FINISH$)
140 SUM=SUM+PEEK(I):NEXTI
150 IF SUM=CHECK THEN PRINT
    "BLOCK $";START$;" TO
    $";FINISH$;" O.K.":
    GOTO100
160 PRINT"CHECKSUM ERROR IN
    BLOCK $";START$;" TO $";
    FINISH$
170 BERR=BERR+1:GOTO100
1000 IF BERR=0 THEN 2000
1010 PRINT:PRINT"CHECKSUM
    ERRORS IN ";BERR;"
    BLOCKS":END
2000 PRINT" *** CHECKSUM O.K.
    ***":END
5000 DATA 1400,1600,39666
5010 DATA 1600,1800,59173
5020 DATA 1800,1A00,50292
5030 DATA 1A00,1C00,48144
5040 DATA 1A00,1C00,51984
5050 DATA 1E00,2000,49753
5060 DATA 2000,2200,51395
5070 DATA 2200,2400,51753
5080 DATA 2400,2600,51313
5090 DATA 2600,2800,44161
5100 DATA 2800,2A00,31873
5110 DATA 2A00,2BFF,58466
5120 DATA LAST,LAST,3333
```

SPEEDSKI

NAME: DUB SCROGGIN

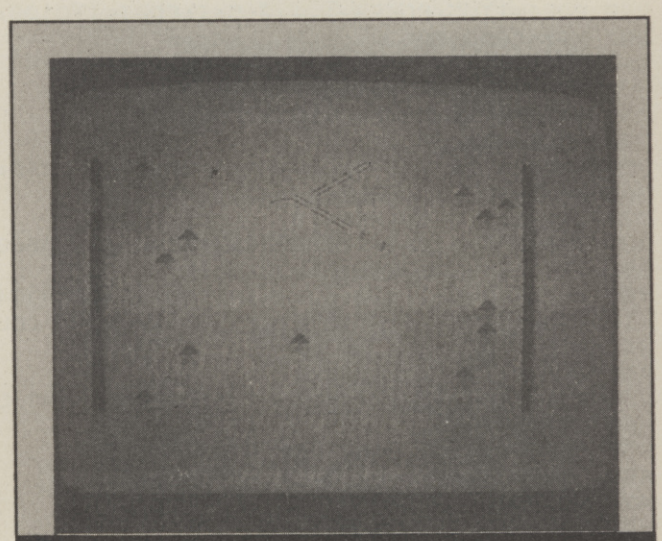
Dub Scroggin is a name for you could be forgiven for not knowing. We'd never heard of him at Commodore User, until we discovered his excellent game, *Speedski*, in Compute!'s Third Book of Games for Commodore computers.

Speedski is a worthy inclusion in our 'Top Games' selection, because it runs in Basic on an unexpanded Vic-20, yet features the speed and excitement of many machine-code games found on larger machines.

As I said, the program is totally Basic so you should have no problem entering it, especially with Commodore User's 'Easy Enter' system. There are only two keyboard controls, '<' to move the skier left and '>' to move him right. Simplicity itself.

The object of the game is to guide your skier from top to bottom of the slalem course in the shortest possible time. Bonus points are gained for passing through the gates, and you can gain extra time by hitting the jumps dotted around the course. 'You will be penalised if you hit a tree, or crash into the fence (if you're lucky, you can get away with hitting the occasional tree!).

Up to four players can participate, so there's no excuse for not inviting your friends round for an afternoon on the piste!



SPEEDSKI

Speedski — for the Vic-20 (unexpanded) by Dub Scroggin

```
10 PRINT"[CLS][9CD][6SPC]SPEEDSKI":PRINT"[9CD]"
20 POKE56,28:POKE55,250:POKE52,28:POKE51,250:POKE36879,25
30 READX:IFX=0THEN70
40 FORI=XTOX+7:READY:POKEI,Y:NEXTI:GOTO30
50 DATA7672,16,56,56,124,124,254,254,16
51 DATA7664,0,0,15,32,64,128,0,0
52 DATA7656,0,0,240,4,2,1,0,0
53 DATA7648,40,40,40,40,104,56,44,40
54 DATA7640,32,16,136,68,34,17,8,4
55 DATA7632,4,8,17,34,68,136,16,32
56 DATA7624,16,28,30,28,16,16,16,56
57 DATA7616,0,0,0,0,255,85,170,255
58 DATA7608,16,24,126,24,26,44,72,16
59 DATA7424,0,0,0,0,0,0,0,0
60 DATA7592,8,24,126,24,88,52,18,8
61 DATA7584,0,0,0,0,0,0,255,0
62 DATA7576,8,8,28,8,62,8,127,8
63 DATA7568,8,8,62,8,8,8,0,0,0
70 PRINT"[CLS][BLK][6SPC]SPEEDSKI":PRINT"[22G<T]"
80 PRINT"[CU][BLU]YOUR SCORE IS ELAPSED TIME + 5 FOR EACH GATEMISSED.[2SPC]LOWES
T SCORE WINS."
90 PRINT"[CD]PRESS[REV]<[OFF]TO GO LEFT[4SPC]AND [REV]>[OFF]TO GO RIGHT."
100 INPUT"[CD]NO. PLAYERS (1-4)";NP:IFNP<1ORNP>4THEN70
110 INPUT"[CD]NO. ROUNDS[2SPC](1-5)";NR:IFNR<1ORNR>5THEN70
120 R=1:P=1
130 PRINT"[CD][REV][CYN]SKIER #";P:PRINT"[CD][BLU]SLOPE DESIRED":PRINT"1=BEGINNE
R":PRINT"2=INTERMEDIATE"
```

SPEEDSKI

```
140 PRINT"3=ADVANCED":PRINT"4=OLYMPIC":PRINT"5=PROFESSIONAL"
150 A$="":GETA$:IFA$=""THEN150
160 IFA$="1"THENS$="[2SPC]BEGINNER"
170 IFA$="2"THENS$="INTERMEDIATE"
180 IFA$="3"THENS$="[2SPC]ADVANCED"
190 IFA$="4"THENS$="[2SPC]OLYMPIC"
200 IFA$="5"THENS$="PROFESSIONAL"
210 SK=VAL(A$):RN=(SK+1)/10:IFSK<1ORSK>5ORSK<>INT(SK)THENPRINT"[10CU]":GOTO130
220 SK=35-5*SK
230 POKE36869,255:PRINT"[CLS]":POKE36878,15:S=36877
240 FORI=1TO22:L=INT(RND(1)*19)+1:PRINT"[RED]<";TAB(L);"[GRN]?";TAB(20)"[RED]<":
NEXTI
250 B=7910:C=30720:F=55:POKEB,F:POKEB+C,3:POKEB+22,32:POKEB+21,32:POKEB+23,32
260 POKE8125,57:POKE8131,57:POKE8125+C,4:POKE8131+C,4
270 PRINT"[HOM][8CD][4SPC][REV]";S$;"[13CD]"
280 FORI=8126TO8130:POKEI,52:POKEI+C,4:NEXTI
290 FORI=1TO5:POKES-1,220+5*I:FORT=1TO100:NEXTT:POKES-1,0:NEXTI
300 TI$="000000"
310 GETA$:IFA$=""THEN310
320 IFSKTHENFORT=1TOSK:NEXTT
330 IFF=55THENPOKEB-21,58:GOTO350
340 POKEB-23,59
350 IFPEEK(197)=29THEND=-1:F=55:POKES,245:GOTO370
360 D=1:F=53:POKES,246
370 G=G+1:IFG<28THEN410
380 G=0:E=E+1:IFE=10THENPRINT"[PUR]9888888888888888888889":GOTO460
390 IFE>10THENPOKEB,56:GOTO510
400 X=INT(RND(1)*10)+2:PRINTTAB(X)"[PUR]9444449":GOTO460
410 IFG=10THENX=INT(RND(1)*10)+4:PRINT"[CU][RED]<";TAB(X)"[CYN]>=";TAB(20);"[RED
]<"
420 IFRND(1)>RNTHEN440
430 L=INT(RND(1)*19)+1:PRINT"[RED]<";TAB(L)"[GRN]?";TAB(20)"[RED]<":GOTO450
440 PRINT"[RED]<";TAB(20);"<"
450 IFPEEK(B)<>32THEN500
460 POKEB,32:B=B+D:POKEB,F:POKEB+C,3
470 GOTO320
480 END
500 IFPEEK(B)=52THENH=H+1:POKES-1,240:FORT=1TO30:NEXTT:POKES-1,0:GOTO460
510 IFPEEK(B)=56THENH=10-H:TM=INT(TI/60):POKES-1,0:POKEB+D,F:GOTO640
520 IFPEEK(B)=57THENPOKES-3,220:GOTO570
530 IFPEEK(B)<>62ANDPEEK(B)<>61THEN570
540 POKES,253:D=D*2:G=G+10:FORI=1TO10:PRINT"[RED]<";TAB(20)"[RED]<":NEXTI:IFSK>0
THENSK=SK-2
550 IFU>-3THENB=B+22:U=U-1
560 GOTO460
570 IFPEEK(B)=60THENPOKEB,60:D=D*-2:GOTO600
580 IFPEEK(B)=63THENPOKEB-22,50:POKEB,51:GOTO600
590 POKES-3,0:GOTO460
600 FORJ=2TO0STEP-1:FORI=11-JTO11+J:POKE36864,I:NEXTI,J
610 OS=OS+1:FORT=0TO127:POKES,255-T:POKEB-22+C,INT(T/22)+2:NEXTT:POKES-1,0
620 IFPEEK(B)=51THEND=-22:U=U+1:IFU=10THENPRINT"[REV][CLS]TRY AGAIN":POKE36869,2
40:GOTO690
630 GOTO460
640 POKES,0:FORT=128TO255:POKES-3,T:NEXTT:POKES-3,0
650 U=0:PRINT"[CLS][REV]OBJECTS HIT=";OS:PRINT"[REV]GATES MISSED=";H:PRINT"[REV]
TIME="TM:SC=TM+5*H
660 PRINT"[REV]SCORE="SC:POKES-2,220:FORT=1TO100:NEXTT:POKES-2,0:POKE36869,240
670 Z(P)=Z(P)+SC:PRINT"[2CD][7SPC][REV]ROUND";R:PRINT" ":FORI=1TONP
680 PRINT"[3SPC]SKIER £";I;Z(I):NEXTI
690 SC=0:G=0:E=0:OS=0:H=0:IFU=10THENU=0:POKES,0:GOTO130
700 P=P+1:IFP<NP+1THEN130
710 R=R+1:IFR<NR+1THENP=1:GOTO130
720 PRINT"[2CD][6SPC][REV]GAME OVER":PRINT"[2CD][BLK]PLAY AGAIN? (Y/N)"
730 GETA$:IFA$="Y"THEN RUN
740 IFA$<>"N"THEN730
750 END
```

Careful!

Sinclair User is giving away a FREE 24-page booklet on the front of the June issue. It's crammed with information, prices, features, suppliers and star ratings of all the available Spectrum and QL add-ons. So you'll never again buy an overpriced joystick or non-compatible printer.

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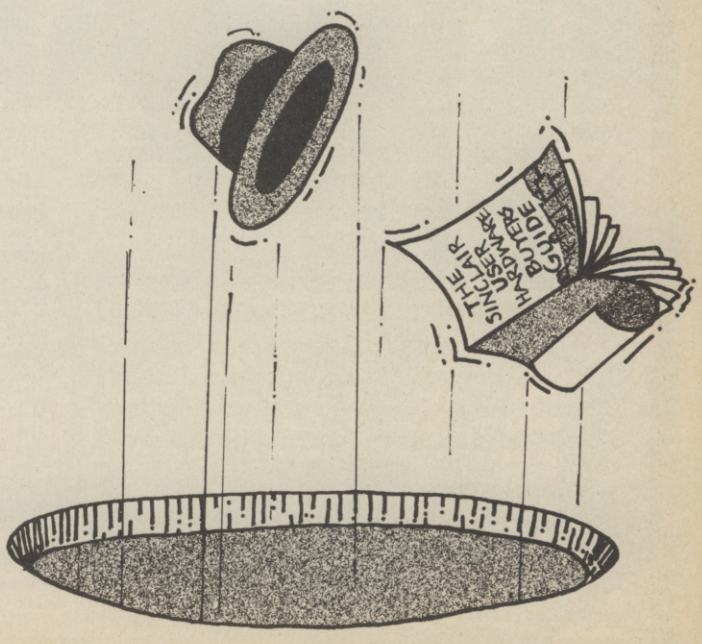

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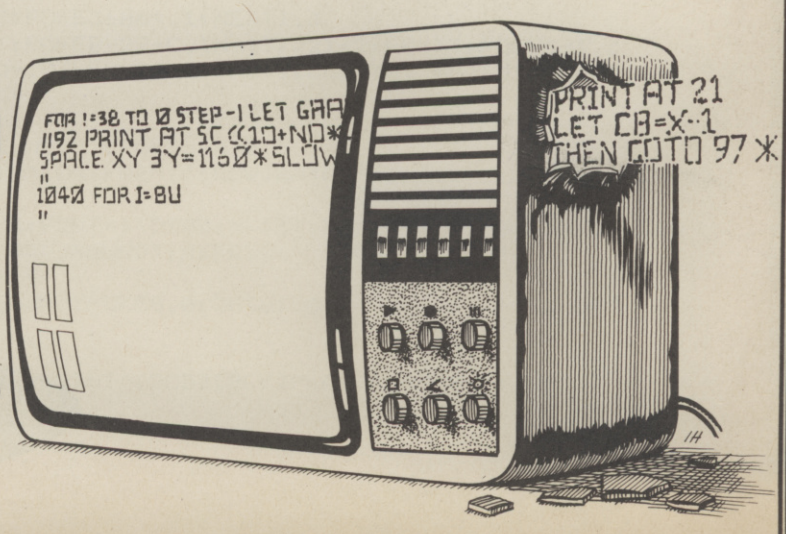

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HOW TO USE EASY ENTER

EASY ENTER

COLOUR CODES

[BLK]	— press CTRL and 1
[WHT]	— press CTRL and 2
[RED]	— press CTRL and 3
[CYN]	— press CTRL and 4
[PUR]	— press CTRL and 5
[GRN]	— press CTRL and 6
[BLU]	— press CTRL and 7
[YEL]	— press CTRL and 8

[ORG]	— press CBM key and 1
[BRN]	— press CBM key and 2
[L RED]	— press CBM key and 3
[GR1]	— press CBM key and 4
[GR2]	— press CBM key and 5
[L GRN]	— press CBM key and 6
[L BLU]	— press CBM key and 7
[GR3]	— press CBM key and 8

COMMODORE GRAPHIC CHARACTERS

PRINT WHITE	FUNCTION KEY F2
CURSOR DOWN	FUNCTION KEY F4
REVERSE FIELD ON	FUNCTION KEY F6
HOME	FUNCTION KEY F8
PRINT RED	PRINT BLACK
CURSOR RIGHT	CURSOR UP
PRINT GREEN	REVERSE FIELD OFF
PRINT BLUE	CLEAR
FUNCTION KEY F1	INSERT
FUNCTION KEY F3	PRINT PURPLE
FUNCTION KEY F5	CURSOR LEFT
FUNCTION KEY F7	PRINT YELLOW
	PRINT CYAN

OTHER CODES

[CU]	— press 'cursor up' key
[CD]	— press 'cursor down' key
[CL]	— press 'cursor left' key
[CR]	— press 'cursor right' key
[HOM]	— press HOME key
[CLS]	— press CLEAR key
[DEF]	— press INST key (insert)
[REV]	— press RVS ON key (CTRL and 9)
[OFF]	— press RVS OFF key (CTRL and 0)
[SPC]	— press spacebar
[G<key]	— press CBM key with specified key
[G>key]	— press SHIFT key with specified key

EXAMPLES:

[3SPC]	— press spacebar three times
[5CD]	— press 'cursor down' key five times
[G>F]	— press SHIFT key with 'F'

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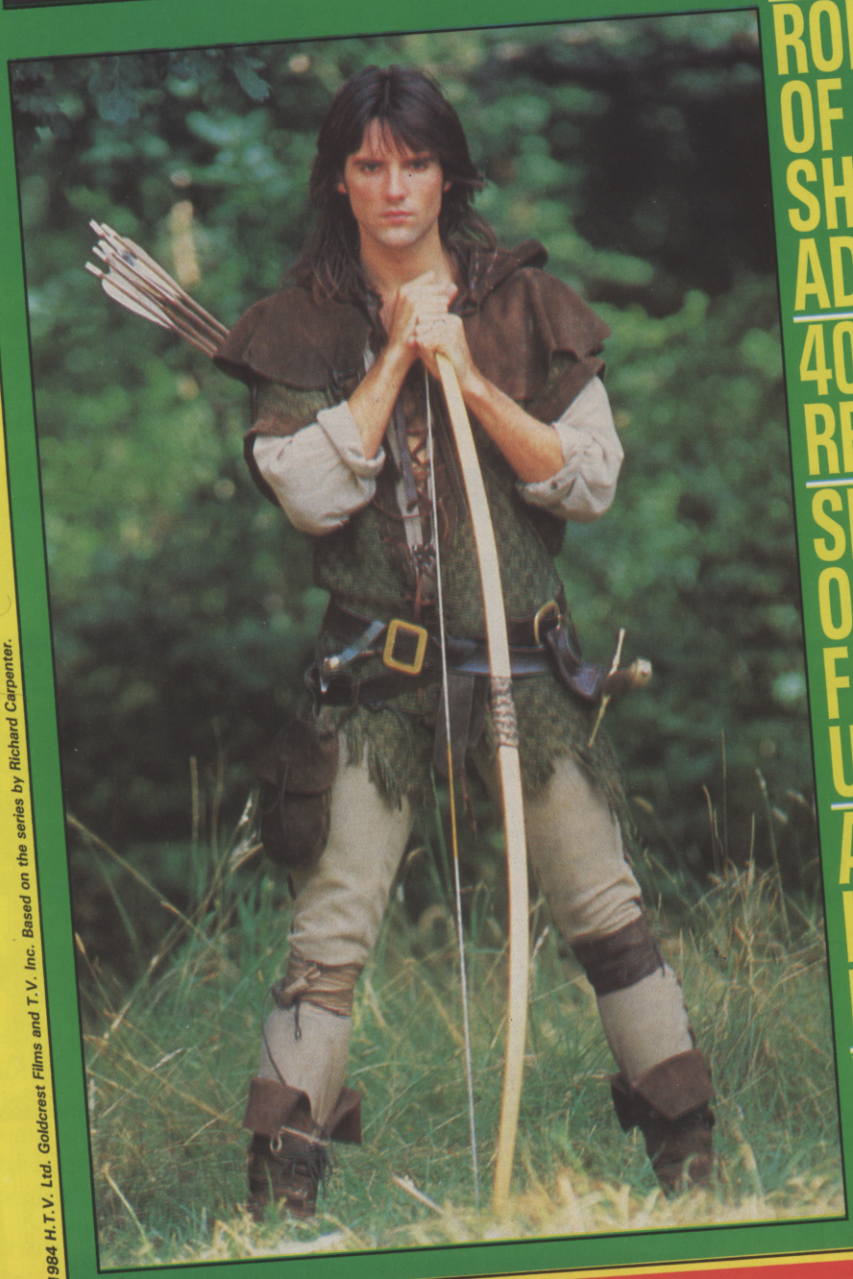

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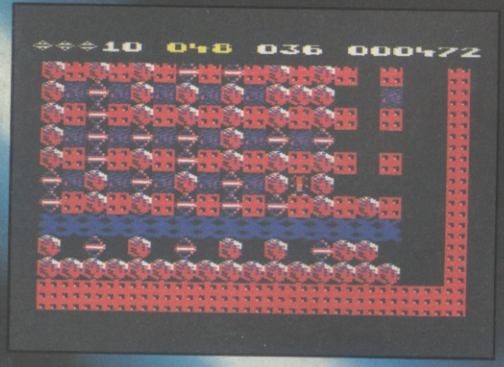

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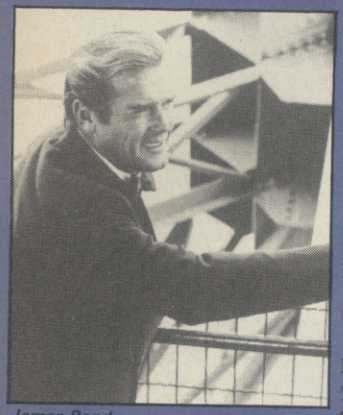

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COMMODORE User

PEOPLE

Editor Eugene Lacey
Deputy Editor Bohdan Buciak
Staff Writer Mike Pattenden
Design/Production Lynda Skerry
Contributors Chris Durham, John Ransley, Dan Gutman, Fred Reid, Tom Jeffries
Advertising Manager Julie Madigan
Advertisement Executive Julia West
Advertisement copy control Josephine Collins
Publisher Rita Lewis
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Shorts

Commodore coach: *Football sponsorship thrives in Britain but no team is, as yet, sponsored by Commodore. Not so in Germany where top Bundesleague club, Bayern Munich, trots on to the field sporting the Commodore logo. Not only that, their team coach is painted in gaudy Commodore colours. This has proved valuable to Commodore, who commmandeered it to ferry VIPs to and from the recent Hanover Fair. Luckily Bayern had a home match that weekend — they lost to rivals Hamburg.*

Shorts

Serial Connexion: *SMC Supplies, manufacturers of the Commodore Connexion Centronics interface, has now produced an RS-232 version, costing £19.95. This is probably a good move since the only other RS-232 interface for the 64 came from now-defunct Stack. The SMC device comes complete with cable and interfacing software on tape. It should be available from Boots and "good computer stores" according to SMC, who can be contacted on 01-441 1282.*

Shorts

Ultimate for Commodore: *Ultimate's top-selling Spectrum titles are, at long last, to be converted for the 64. Both Sabre Wulfe and Underworlde have been licensed to BT's Firebird Software which invested lots of money to get the rights. Conversion work has now begun but, according to a Firebird spokesman, neither game will be in the shops before September.*

Shorts

Customised MPS-801: *If you wept a few tears into your wallet when you found out your Commodore MPS-801 printer couldn't produce descenders (the tails on letters like 'g' and 'p'), there's good news — from Nova Scotia. Kobetek Systems is marketing a replacement chip that gives you the desired descenders and "a more pleasing overall look" to the print. And it will only cost you £25. More details from Kobetek Systems Limited, 1007 Commercial Street, New Minas, Nova Scotia B4N 3C4.*

WHAT YOUR RIGHT ARM'S FOR

Remember when wristwatches were just two hands and a dial? Then they started peeping and playing annoying tunes. Now you can buy a computer terminal to strap onto your arm.

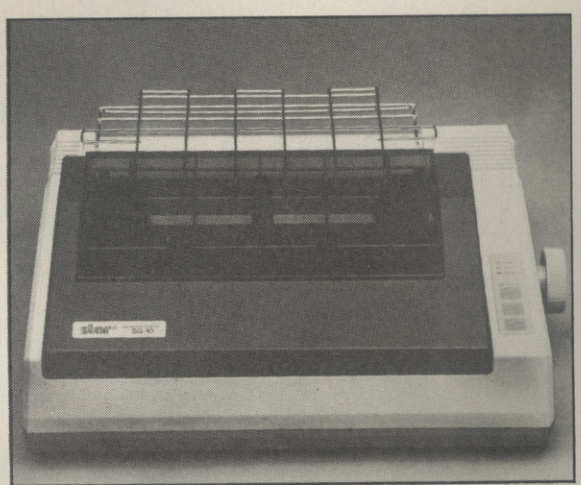
Seiko has produced the RC-1000, the world's smallest wristwatch/computer terminal, which you can plug into your Commodore 64 via an RS232 connection and accompanying software. It has a two-line, 24-character liquid crystal display and a whole variety of fancy functions.

It can be used as an electronic memopad, telephone directory and diary (holding up to 2K), the information being entered from the 64's keyboard. It has a complex alarm mode and facilities for memorising up to 80 date items per year. Oh, and it tells the time.

This mega-sophisticated timepiece doesn't come cheap at around £120 and it should be in the shops by the middle of June. Also planned is a version that uses its own miniature keyboard to input data. What will they think of next?

But how do I strap the 64 on to my right arm?

NEW STAR FOR COMMODORE



Identical in looks to the SG-10, you can plug the SG-10C straight into the serial port on your Commodore micro.

Printer manufacturer, Star, has just announced a Commodore version of its new SG-10 printer, which should be available in Britain round about July. Called the SG-10C, it will cost about the same as the SG-10 (£259) but contains a few less facilities.

Despite that, it does mean you'll be able to plug your Commodore micro straight into the printer without having to fiddle around with an expensive and awkward interface adaptor. More interesting, the SG-10C will print the complete Commodore graphics set and control codes.

It prints bi-directionally at a nippy 120 characters per second, has both tractor and friction feed and works in 80 or 136 column (condensed) mode. You can also expand, reverse or italicise text. Star UK is on 01-840 1800.

128 GETS CP/M TUTORIAL

Commodore has just announced that its new 128 is to get a CP/M tutorial — in the form of a floppy disk. The program is being prepared by Slough-based Microcal, specialists in computer-aided training, who are adapting their existing CP/M tutorial for 8-bit micros.

The news is interesting partly because it demonstrates Commodore's confidence that the 128's CP/M mode will attract lots of buyers. The availability of a CP/M training disk means the initial stages of learning this cumbersome operating system becomes relatively painless. Whether the program will be given away with the 128 or sold separately isn't yet decided.

Microcal is also producing an MS-DOS tutorial for the new IBM-compatible Commodore Personal Computer. Again, they're adapting an existing package for the IBM PC. But according to Microcal boss, John Shearing, there was litle work to do. That's encouraging since the Commodore PC is claimed to be totally IBM compatible.

TYPE IT RIGHT

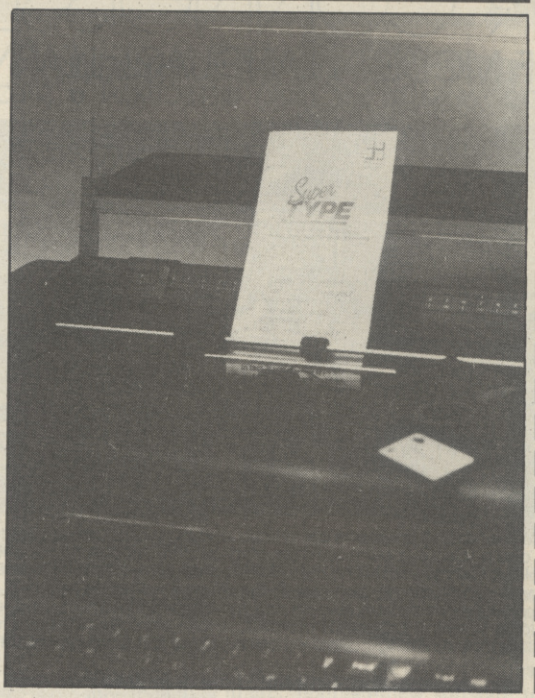
Now that so many Commodore 64s are being used for wordprocessing, whether it's your history essay or a financial report, a program that teaches you how to type properly (with more than two fingers) sounds like a good idea.

Well, the idea's occurred to Precision Software, who've just produced a program called *Supertype*. Costing £19.95 on cassette, the package includes a 50-page stand-up manual.

According to Precision chairman, John Tranmer, "Supertype gives mums and dads and other members of the family a way of making direct and practical use of the home computer". It's also claimed to bring you up to a 50 word per minute standard. And that's no mean feat.

The program uses colours to match the right fingers to the right keys. There's also a 'metronome' sound to help you develop a good typing rhythm. According to the blurb, the program also gives you feedback: each exercise is structured to comment on progress and highlight any areas for improvement.

A business version of the package, on disk (£34.45) will also be available soon for the new Commodore Personal Computer. More details on 01-330 7166.



Supertype will help you reach speeds of up to 50 words per minute

This is a little beastie you definitely won't see in any British shops. Called the Commodore 116, it's really a Commodore 16 with a small Plus/4-style case and 'chiclet' keys rather like the old Spectrum. Apparently the machine was to be marketed only in Germany where it hasn't gone down very well. Yet another black mark for Commodore's marketing strategy.

Shorts

Grandmaster for 16: *Conversions for the Commodore 16 keep on trickling through, slowly but surely. Audiogenic has adapted its Grandmaster chess program, which gained success on both the Vic and 64. All its original features have been retained, including the bargain £8.95 price-tag.*

Shorts

Ariola tombola: *Latest ideas for promoting your wares — from Ariolasoft. The big-spending company has organised a monthly draw (running until December) for a portable SX-64 (which won't run any of their tape games). It also has a voucher scheme for discounts on joysticks, the Currah 64 speech cartridge and the 1541 disk drive. All you have to do is buy their games.*

Shorts

More Screen Shots: *Dorling Kindersley has added two more books to its colourful Screen Shot series for the Commodore 64. Written by Phil Cornes, both volumes deal with 64 graphics and, to quote the blurb, "include a step-by-step guide to programming sprites along with a colour directory of more than 200 sprites". They'll cost you £5.95 each. And you can talk to the publishers on 01-240 5765.*

Erratum: *In last month's Utilities piece we said the maker of Quickdisc was Softsel. The company distributing it is in fact Evesham Micros and they can be contacted on (0386) 49641 at Unit 2, Crown Courtyard, Bridge Street, Evesham, Worcs. Apologies for any inconvenience incurred.*

POP GOES MUSIC MAKER

If you're getting bored with just playing your own compositions on Commodore's Music Maker package, you may like to try your hand at some Beethoven, a little Mozart, perhaps Tchaikovsky, Abba or even Rod Stewart.

Commodore has produced a software program, available on tape or disk, for all the aforementioned (plus a few more), each one containing twelve 'tunes' for you to play along with. Costing £9.99 each, you can use them even if you don't own a Music Maker.

You can play in a number of ways. In 'concert mode' you get a graphic accompaniment and the option to play or not. 'Rehearsal mode' lets you learn the melody at your own speed. You can also control the tempo. Lastly 'performance mode', in which you play the complete melody to an accompaniment running in correct time — next step, the Albert Hall.

Music Maker — a must for the budding Beethoven?

For those of you with Midi-compatible synthesisers, Commodore claims that each of these packages will allow you to connect to the synth keyboard to get even better sounds. Even Howard Jones had to start somewhere. □

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Gunning for the Big Boys

Commodore at the Hanover Fair

The annual Hanover Industrial Fair makes London's Olympia look like a village hall disco. Despite the Fair's immense size, Commodore still managed to make an impact by showing a whole load of new computers, ranging from the C-128 to the highly sophisticated Commodore 900. Bohdan Buciak battled his way through the crowds to file this report.

A special report by Bohdan Buciak

Nobody could accuse Commodore of being a mere minnow in the hi-tech fishtank. It's now regarded as the biggest seller of home computers in the world. But Commodore doesn't feel that's enough.

With total sales of around five million, the 64 is becoming the Volkswagen Beetle of computing — a world best-seller. But to the hi-tech racing driver, it's just a toy. To make it big you've got to make smarter machines, and grapple with the likes of Apple and IBM.

So Commodore went to the Hanover Fair with not just one, but a series of three new computers, just to prove to a German public that's already sold on Commodore, that the company is on track for greater heights. But there was one omission — no Amiga.

Amiga where are you?

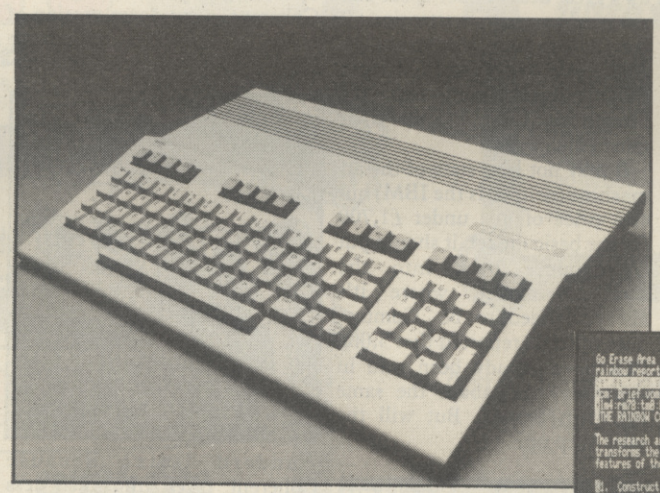
Commodore used to give sneak previews of new developments to the Chosen Few, sometimes disastrously when a machine failed to appear. This time, the Chosen Few had to shrug their shoulders — the mystery machine just wasn't there. Sworn to secrecy, Commodore personnel stiffened at the mere mention of its name.

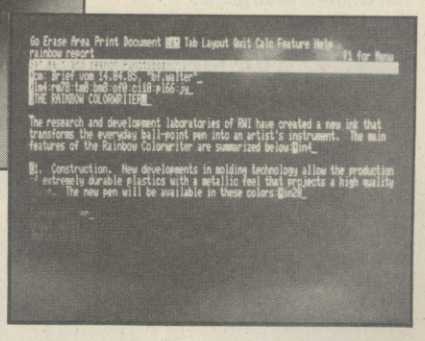
"Everything is on schedule," mumbled a wary Gail Wellington, Commodore's European software boss, as though 'the competition' were crouching under the table. "We're heading for a summer launch in the States and a winter appearance in Britain."

What about price, specification, software? Gail Wellington wasn't playing: "We're only admitting to those marvellous sound and graphics chips and that the operating system is being written by a British firm. We're keeping our mouths shut because we want the singing and dancing to start when the Amiga is launched." But nobody was being tight-lipped about the just-launched 128.

Das Superding Computer

Back at the beseiged Commodore stand, enthusiastic German 'jugend' crowded round the five working C-128 machines on open display for the first time. Above their heads, a sign proclaimed "128 — das superding computer" — whatever that means.





Above: Commodore 128 — star of the show. Right: Superscript running in 80-column mode

Another three superding 128s were being demonstrated by Commodore staff, bombarded by 'technik' questions — the Germans take their computing seriously. Even the boys from Atari (incognito) were spotted, trying to dig up more information to take back to Uncle Jack Tramiel.

Not surprising, with 300,000 64s sold there already, everyone wanted to fathom the 128's upgrade potential. But despite the demos of the 128's assembler/disassembler, 80-column screen, new Basic commands and the bagful of other features, there was little new software to be seen.

No 128 Games

That news will disappoint 64 games players looking for more spectacular software running in 128 mode and using the larger memory. According to one Commodore 'technische' specialist, developing arcade games in 80 columns is not feasible since the new video chip takes too long to update the screen.

On top of that gloom, it looks as though any software that does appear for 128 mode will be on disk. "Personally, I'm not encouraging 128 mode cassette software", asserts Gail Wellington. "If you've got the new mode, you should put it to more sophisticated use."

That seems to make sense — after all, the 128 is supposed to upgrade the 64. If you just want to play games, why buy a 128? Maybe that doesn't bother the Germans who seem to lag behind dismally in superior games software. One of the 64s on display was running a version of Breakout — no US Gold here, not even a Jet Set Wolfgang.

Easier Easyscript

So what 'sophisticated' software has appeared to date? Precision Software had managed to come up with *Superscript*, an 80-column version of Easyscript that runs in both 40- and 80-column mode. According to Tom Cranstoun, Precision's chief programmer, it's crammed with enhancements.

"There's a spelling checker program with a 30,000 word dictionary that you can add to", he enthused. Extensive 'help' menus have been added so that ▶

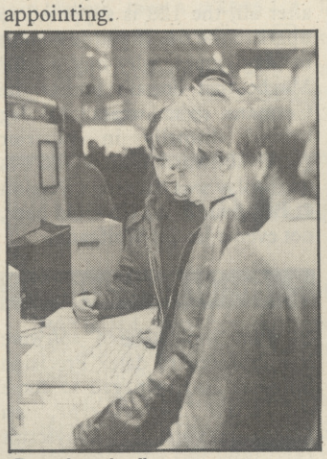
Gunning for the Big Boys

you don't have to keep referring to the manual — a major gripe with the original Easyscript.

You can scroll across 250 columns and the words 'wrap-around' at the end of each line, just like the professional packages. Better still, files are stored sequentially so Superscript will read files you've already created on Easyscript — no upgrade problems here.

But Tom Cranstoun didn't manage to get the new 80-column *Superbase* ready in time. "It will have the same capacity but it will be faster and have more Help menus", he revealed. And if you load up Superscript before Superbase, you can transfer information between the two — in effect, you've got Superoffice.

Apart from those two old-faithfuls, the only other software so far available is Audiogenic's *Swift* spreadsheet and the *Perfect* series (wordprocessor, database, spreadsheet) from Thorn EMI, the only software yet produced to run in the 128's CP/M mode. In short, it was all a little disappointing.



But where is all ze games software, Helmut?

128 RAMdisk

Not so disappointing is the news that a 64K RAMdisk will soon be available for the 128, but it will work only in 128 mode. It amounts to a plug-in cartridge to which you can read and write, as though it were a disk drive. Access and data transfer speeds will be much increased because no mechanical movements are involved.

Although there's no firm information on it yet, you probably won't be able to use the usual 1541 commands. But the 128's Basic does have special RAMdisk commands: STASH, FETCH, SWAP, OFF and SYSTEM — those are pretty self-explanatory for the advanced programmer.

The price is right

Two major questions: who will buy the 128 and what will it cost? Commodore reckons about ten per cent of existing 64 owners in Germany will, not to mention the first-time business user who may be attracted away from other machines.

A recent back-biting Commodore advert in the States suggests that the 128 is "Bad News for Apple and IBM" and compares it with the Apple 11c and the IBM PC jr. The latter is now defunct. One down, one to go — and the knives are out.

And the price? Around £330 was being quoted for the 128, with another £330 for the 1571 disk drive and £350 for the colour monitor. All those compare favourably with Apple and are about the same as a similar Atari 520ST set-up. In Britain, they should be slightly cheaper — Germans seem to have more 'geld' to throw around.

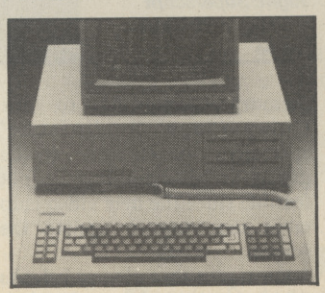
BUSINESS

The Commodore Personal Computer (reviewed this issue) took up a great deal of floor-space and attracted even more attention. If the 128 was firing a salvo at both Apple and Atari, the PC-10 and PC-20 were lining up the ubiquitous IBM PC in their gunsights.

It may not be a state-of-the-art machine (neither is the IBM) but at a price of just under £1,700 for the basic model, it should put Commodore back into the business market, where it's always longed to be. Commodore officials reported that 5,000 PCs have already been sold in Germany, and about the same figure in Britain. But will the sales keep up?

High-flying technology

The other rising star at the Commodore Show was the new



The PC 10 — back to business for Commodore?

The new 900, Commodore's mightiest micro

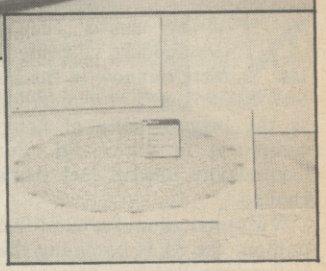
Commodore 900, described as a multi-user, multi-tasking micro — more about all that later. Still in its development stages, the machine showed enough potential to prove that there's real sophistication here — perhaps the most hi-tech machine Commodore has ever produced. So what is it?

It's a 16-bit micro running the Zilog Z8000 processor. The operating system is called Coherent, a cut-down version of Unix System Five. Why use Coherent instead of the industry-

standard Unix? Because Coherent takes up much less memory, and Commodore didn't have to buy a Unix licence.

Whether Unix or Coherent, it still means that the Commodore 900 can run a number of applications simultaneously (the number partly depends on how many programs you can fit into the standard 512K of RAM). There's also a 20MB hard disk as standard, with options for 40 and 67MB. The multi-user version lets you connect up to seven terminals to share the 900's processing power.

At around £3000 for the basic model, these machines will



Window/graphics software on the 900 — useful for CAD applications

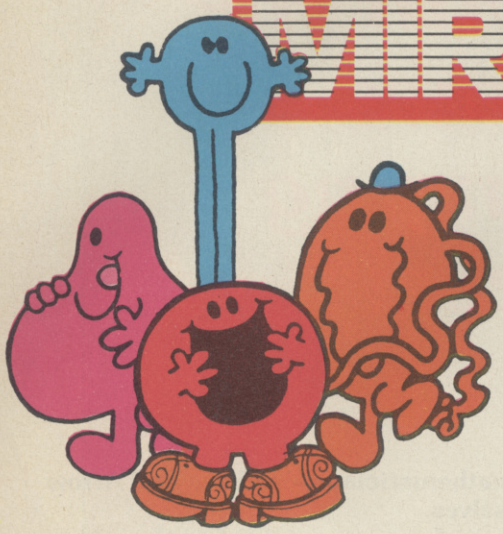
appeal only to specialised uses. One of these should be computer-aided design, since one version of the 900 has an astonishingly high screen resolution of 1024 by 800 pixels. There's also 'windowing' software and a mouse — definitely not for home use.

Conclusions

All the new machines shown at the Hanover Fair will be on display at the Commodore Show in London at the beginning of June. And they'll probably make just as large an impact. With this new range, Commodore is proving that it's not prepared to sit on its laurels and that it's out to conquer not only the home-computer market but business and specialist uses.

There's just one gap in the range — and the Amiga is destined to fill it. And when that's done, Commodore should have something to offer everyone, at a price (it hopes) they can afford. Whether Commodore is stretching its muscle too far and whether it can tempt people away from Apple, IBM and Atari remains to be seen. One thing's for sure — they're really trying. □

MIRRORSOFT



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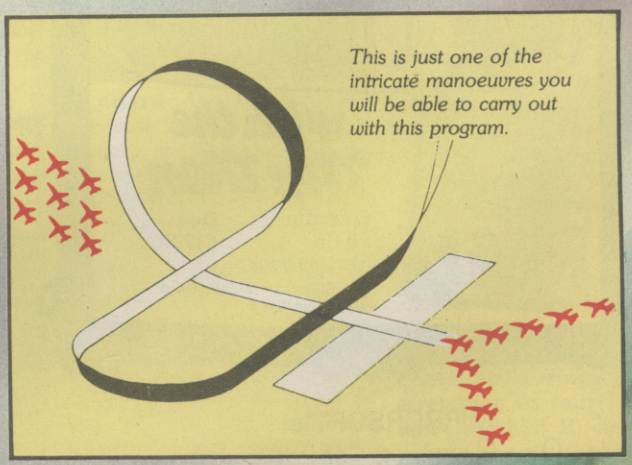

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THE LAST WORD ON AMIGA

ILLUSTRATION: GERRY PARIS

Dan Gutman reports

I promise that this is the last time I write about the **Amiga** computer until Commodore officially announces it. As you may or may not know, there's a new machine cooking in the Commodore labs here in the States, and it's been cooking for nearly two years now — must be on a low heat. It'll be done on 2 June, the day Commodore is expected to introduce it at the Consumer Electronics Show in Chicago.

The amazing thing about the Amiga is that Commodore refuses to even acknowledge that it exists! But word has been leaking out all over the place for the past year. Here's what we know today: it's a 16-bit computer with 256K of random-access memory, and a built-in double-sided 800K floppy disk drive of the 3.5 inch variety. The operating system has been code-named "Intuition". Don't ask me why.

It comes with a mouse, and uses on-screen icons and windows, similar to Apple's Macintosh. It also uses the same microprocessor as the Mac — the Motorola 68000. Unlike the Macintosh, Amiga will be affordable — $750 or so.

Seeing is believing

Nearly a year ago I saw a prototype of the machine myself, and the graphics are *indescribably superior* to anything you've seen, with the possible exception of some of Walt Disney's better cartoons. The machine will probably not be called "Amiga" when it's announced — that's just the name of the company that originally designed it. Commodore bought them out a while ago.

One of the things that makes or breaks a new computer these days is whether or not the software companies release programs for it. I called up a few of the big U.S. software superstars this week and asked them which of the new machines they were working with, the Commodore Amiga, the Atari ST (another Macintosh clone affectionately dubbed "Jackintosh"), or both.

Big business

Trip Hawkins, the President of Electronic Arts (*Seven Cities of Gold, Julius Erving and Larry Bird Go One On One*) told me, "Our strategy on the 16-bit machines is to focus on the Amiga. It has everything that you want a home computer to have. It's really the first real home computer." That's the President of the company talking there, not some guy in the mail room. Trip also said that his company will "take a wait and see attitude" about the Atari computer.

Bill Budge, the genius who programmed the phenomenally successful *Pinball Construction Set*, told me, "I know that everybody is developing for the Amiga. People are banking on that one. Nobody is developing for the Atari. Everybody's waiting and seeing, and that's going to hurt Atari a lot."

Cathy Carlston, of Broderbund (*Choplifter, Bank Street Writer, The Print Shop*) told me, "The Amiga is going to blow everyone's socks off!" (If that puzzles you, it's an American expression that means, "It's great!" Feel free to spread it across Europe.)

She also said, "All the tekkies (the programmers) seem to be jumping up and down all over the place." When I asked Cathy about the Atari, she said she still hadn't even seen a prototype of the machine (and this was in April!).

If a software company as big as Broderbund doesn't have a computer two months before the thing is due to go on sale, you can bet it will be a long time before the Atari has any kind of software library. (Actually, that's kind of a scandal on these shores. Usually, hardware companies *give* prototypes of their new machines to the software companies, so new programs will be developed. Atari has been *charging* the software companies $4,500 for hand-wired prototypes of the ST. They've angered a lot of people because of that.)

Big money on Amiga

Anyway, I've talked with several other industry insiders, and most of them put their money on Commodore's Amiga to come out as the winner. If they're right, this could really change the whole computer scene in the U.S., if not the world.

In the past, the "home computer" companies have only released simple, low-power computers. Now, if the Commodore Amiga truly *does* live up to its expectations and causes a stampede to the local dealer, it will deal a serious blow to the rich boys at Apple, IBM and all the companies that make business computers. Why should anyone pay a fortune for a business computer, when they can buy an inexpensive Amiga that's just as powerful? Things should get interesting around Christmastime, when the Amiga should be hitting the stores over here.

Broderbund Software™

ELECTRONIC ARTS

Deaths in the family

As you probably know, there have been a few casualties in the home computer wars over here. In the graveyard: Coleco pulled the plug on their Adam computer early in the year, and IBM sent their PCjr to that great motherboard in the sky recently. Both machines were deeply flawed from the start, and it only proves that survival belongs to the fittest.

One new computer that never even had the chance to be born is the Apple IIx, the rumoured successor to the Apple II. That project has been killed, and Apple co-founder Steve Wozniak has left the company to start his own firm, called "My Best Friend". The word is that The Woz is tired of computers (Apple will be ten years old soon), and will be embarking on some project in the home video field.

I'm not willing to go out on a limb on this one, but I wouldn't be surprised to see Commodore pull the plug on the Plus/4 to join the others in the computer graveyard. It hasn't been received kindly in the U.S., and with all the other new computers from the company, Commodore may not want to waste their resources on a loser. Time will tell.

Commodore will have their C-128 in the stores here by the time you read this, priced between $299 and $329. It seems like the perfect upgrade for Commodore 64 owners — all your software and peripherals will work with the new machine. Commodore says that at least 25 software companies will be introducing new programs for the C-128.

Probably the biggest drawback about the 128 is that everyone is *really* waiting for the Amiga, which is more of a revolutionary computer. Oops, I forgot, I'm not going to talk about that any more until Commodore admits that it exists. See you next month. □

Commodore computer owners are in for a mid-Summer bonanza of new games, printers, disk drives, and weird and wonderful add-ons at the sixth Commodore Computer Show at London's Novotel on the 7th, 8th and 9th of June.

If you are attending the show here is an offer not to be missed. These three pages contain all the information you need about the exhibitors, new products, and events at the show.

Pull out this supplement and take it along to the show with you. No need to fork out for an official show guide as **Commodore User** gives you all the information you need absolutely free.

Commodore User readers also have an opportunity to win a disk drive, and one year's free subscription to your favourite computer magazine at the show.

To win a prize all you have to do is dress up as your favourite computer hero — or celebrity who stars in a computer game, and go along to the Events Room at 3.00 p.m. on the day you are attending the show.

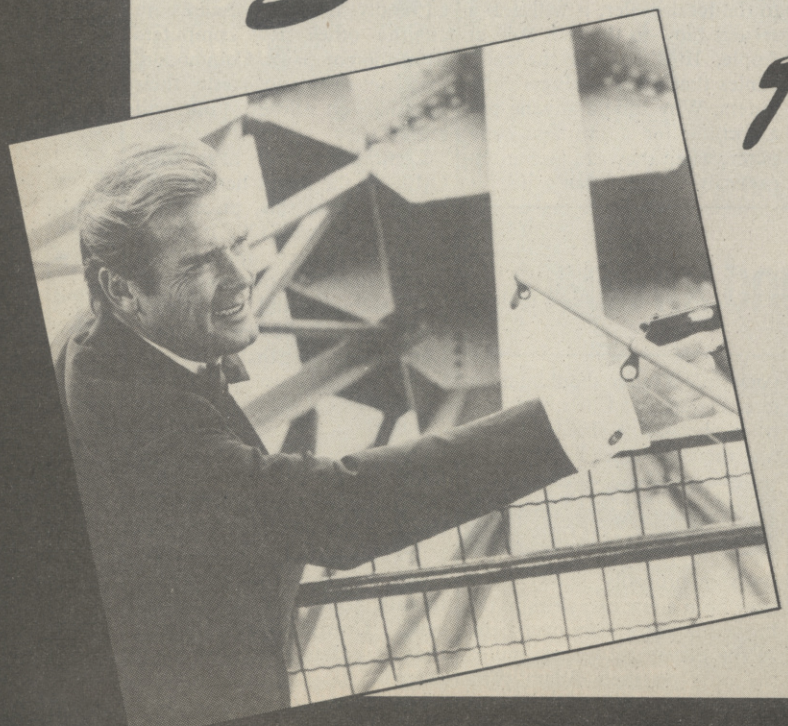
There will be a 1541 disk drive for the best costume of the day. If you don't want to look silly on your way to the show carry your costume with you and change when you get there.

Show highlights are likely to be the first UK showing of the new Commodore computer — the C128, reviewed exclusively in **Commodore User** last month. An update of latest information on this new computer is to be found in this issue.

The computer game based on the new Bond film "A View To Kill" is also launched at the show — and you can win one of ten View To Kill T-shirts copies being given away per day by Domark.

Simply cut out the coupon overleaf and take it along to the Domark stand.

SHOW-TIME AGAIN



ADAMSOFT

Adamsoft are specialists in utilities for Commdore computers. Products on display include *Zoom Pascal, Tiny Forth, Graphics Designer, Checkbook Manager,* and *Budgeteer.*

ALLIGATA

Jackie Charlton will be the main attraction at the Alligata stand. The ex-England soccer star will be there to promote Alligata's latest game — Jackie Charlton's *Sporting Gun.* The rest of the range of games will also be on display.

ANAGRAM

Anagram will be unveiling their Multi-User Integrated Accounts package for the Commodore PC. Also on show will be their Stock Control, Cash Book, and Basic Accounts packages for the 64.

ANIROG

Anirog have several interesting things lined up for the show. The big game is *Jump Jet* which Anirog claim is the first game to use speech as an integral part of the game rather than as a frill. Visitors can also check out *Super Sketch,* and the *Voice Master* on the Anirog stand.

ASK

ASK are educational software experts. Their excellent Time Trucker is a classic and will be on display at their stand together with the rest of the range.

BEAUMONT

Summer camps for computer enthusiasts is the business of Beaumont. Information and literature is available at their stand.

BUBBLE BUS

Bubble Bus will be showing their *Cave Fighter* for the 64, Vic 20, and C16 plus their entire range and a brand new 64 game called *Honest Joe*.

COMMODORE

As you can probably guess the biggest stand at the show will be Commodore's. The main attraction here will be the first UK showing of the C128 — Commodore's new computer to replace the ageing 64. Regular Commodore User readers will have seen our exclusive review of the machine in last month's issue.

If you missed it (shame on you) the main points of interest are that it is completely 64 compatible, has a '128 mode' and a third processor (Z80) which lets it run the CP/M operating system. In short — you've got three computers in one.

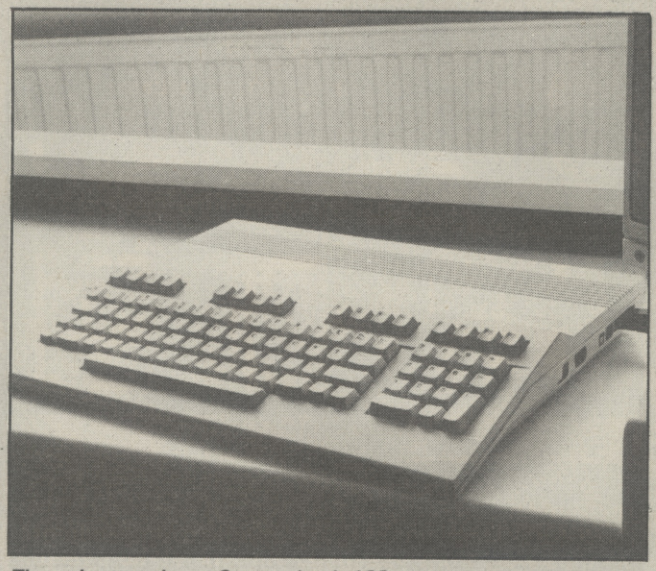
On top of that lot, you've got a much better version of Basic and the facility for an 80-column screen display. Prices have yet to be announced but informed sources think it will be offered at around the £300 mark.

On the games front Commodore will also be showing the third in their series of sports simulations. *Soccer*, and *Basketball* were classics and the new game *Tennis* is expected to follow suit.

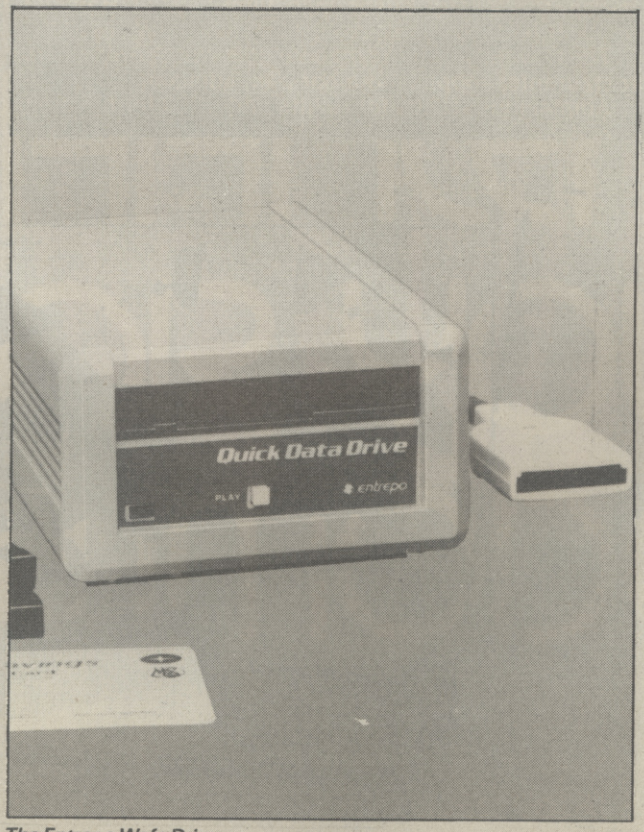
DOMARK

A likely show stopper could be Domark's *A View to Kill*. Domark are the people who had the enormous success with *Eureka* — the four part adventure with the £25,000 prize. The game will be seen for the first time at the show. It is an arcade game closely related to the stunts in the film. According to Domark, James Bond actor Roger Moore is a big fan of computer games. He won't be attending the show but if you keep your eyes peeled you might just spot a Bond girl or two.

Jack Charlton's Sporting Gun.



The main attraction — Commodore's 128



The Entrepo Wafa Drive

GENERAL AUTOMATION WORLD TRADE

The much talked about Entrepo Wafa Drive will be on show for the first time at the show. The Entrepo is an alternative to the much criticised Commodore disk drive. How much will it cost? Will the software houses support it? Ask these questions when you visit the G.A.W.T. stand at the show.

HANDIC

Handic will be exhibiting their wide range of business utilities for the 64. New amongst these is *Base Result* — a data base program.

ICPUG

The letters stand for Independent Commodore Products User Group. ICPUG is an invaluable information source for users of all levels. Visit their stand and find out about their activities.

INTERGALACTIC ROBOTS

Robots are often heralded as "the next big thing" after the home computer boom has run out of steam. IGR are one of the leading UK exponents of the theory. Check out their low price Zero Robot a the show.

LLAMASOFT

Yes, Yak the Hairy will be at the show. He will be freaking out with his new musical experience — *Psychedelia* — plus a brand new game called *Batalyx*. Batalyx will not be 100% finished in time for the show but certain preview screens are promised in time.

MIKRO GEN

Wally experts Mikro-Gen will be much in evidence at the Show. All the Wally games will be on display. The newest release will be *Herbert's Dummy Run*. In this game the baby from *Everyone's A Wally* has got lost in a department store. Mikro-Gen have high hopes for this game. A spokesman for them said it was "better than *Pyjamarama*".

PEAKSOFT

Peaksoft's popular game — *Tim Love's Cricket* will be the subject of a three-day high score competition at the show. The company are promising daily prizes as well as one super-duper prize for the highest score of the whole show.

PHOENIX PUBLISHING

Phoenix have published several books on the subject of Commodore Computing. Commodore User readers will be familiar with their fun Puzzles for the 64. The whole range of books will be on sale at the show.

RAM ELECTRONICS

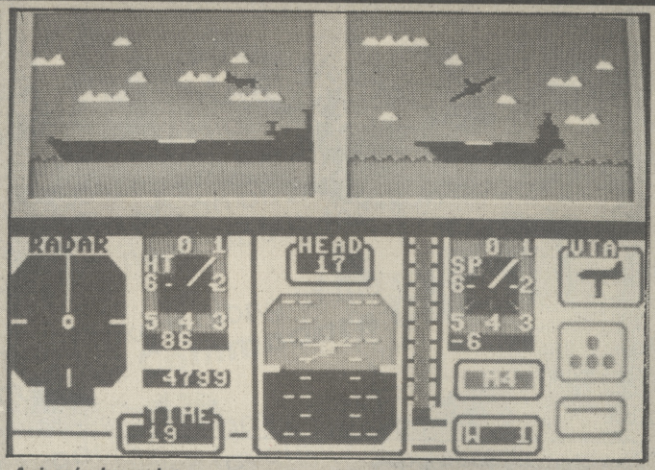
Ram will be showing their range of Ram packs, and utilities for the Vic and 64.

STONECHIP

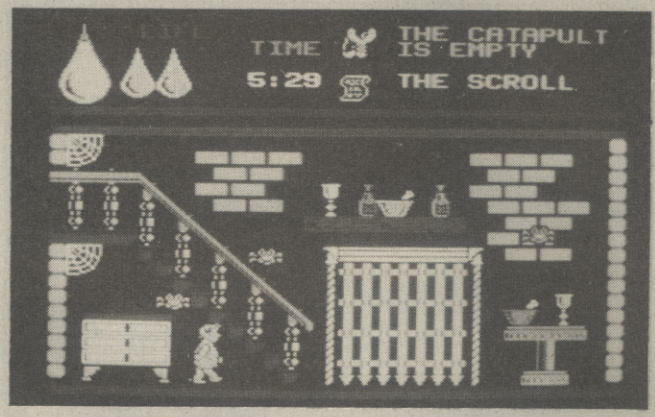
Something of interest here for C16 owners visiting the show in the shape of a Ram pack. Also on show are a 16K switchable Ram for the Vic, a cassette interface for the 64, and a Programmers aid.

SUPERSOFT

Supersoft have two stands at the show. Stand one is in the games area and will be majoring on their brand new cricket game. Supersoft's Peter Calver thinks this game is going to do for cricket on the 64 what *International Soccer* did for football.



Anirog's Jump Jet



Herbert's Dummy Run

HOW TO GET THERE

The 6th Annual Commodore Show will be held at the Novotel in Hammersmith. The Novotel is less than five minutes walk from Hammersmith tube station. Metropolitan, District, and Piccadilly lines pass through Hammersmith. Several buses also terminate at Hammersmith Broadway.

The Novotel is a large modern hotel with several bars, restaurants, shops, and a car park adjacent.

Admission is £2.00 for adults and £1.50 for children.

That's high praise indeed — and well worth checking out.

Stand two will feature the firm's pride and joy — their Sound Sampler. This can record any sound, digitise it, and enables you to play around with the inside of the computer. Computer music buffs will not want to miss having a look and listen to this.

U.S. GOLD

U.S. Gold are the leading 64 games house. They will be selling their whole range at the show at a special offer price. New games on display for the first time will be the excellent talking game from Microprose — *Kennedy Airport Approach*. Commodore User told you about the amazing speech in this game last month. Have a listen for yourself if you attend the show — you'll be knocked out. Also on show for the fist time will be *Beach Head II*, and *Dropzone 64*.

VALIANT TURTLE

The turtle is a computer controlled robot. Used extensively in education the Turtle makes an interesting add-on for your computer.

VIZA SOFTWARE

Viza software will be exhibiting their highly praised business packages Viza Write and Viza Star as for the 64 as well as versions for the new Commodore 64.

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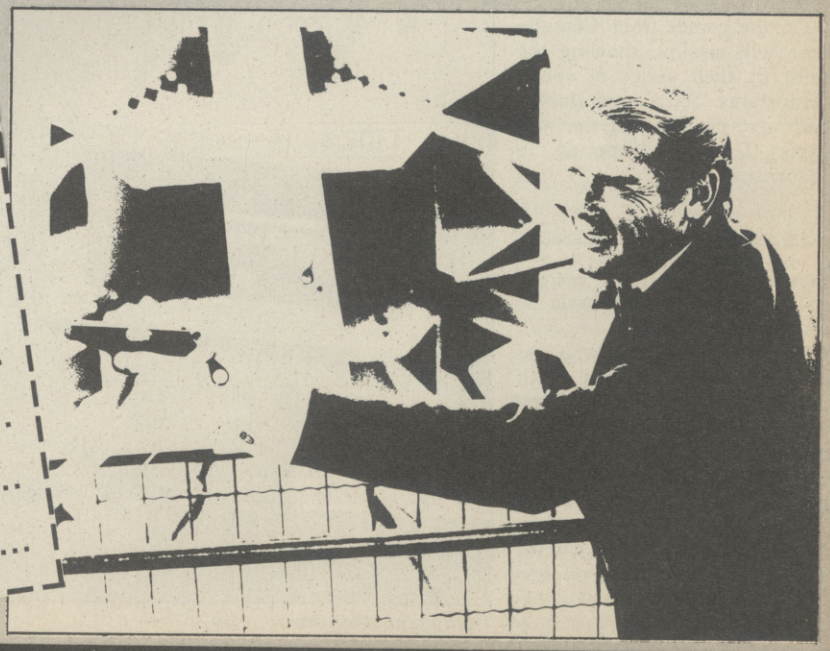

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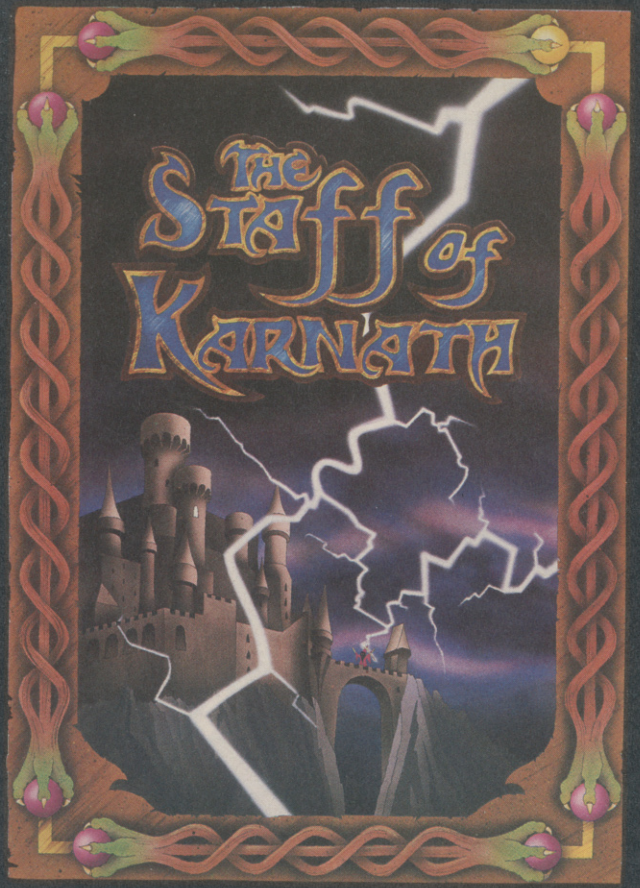

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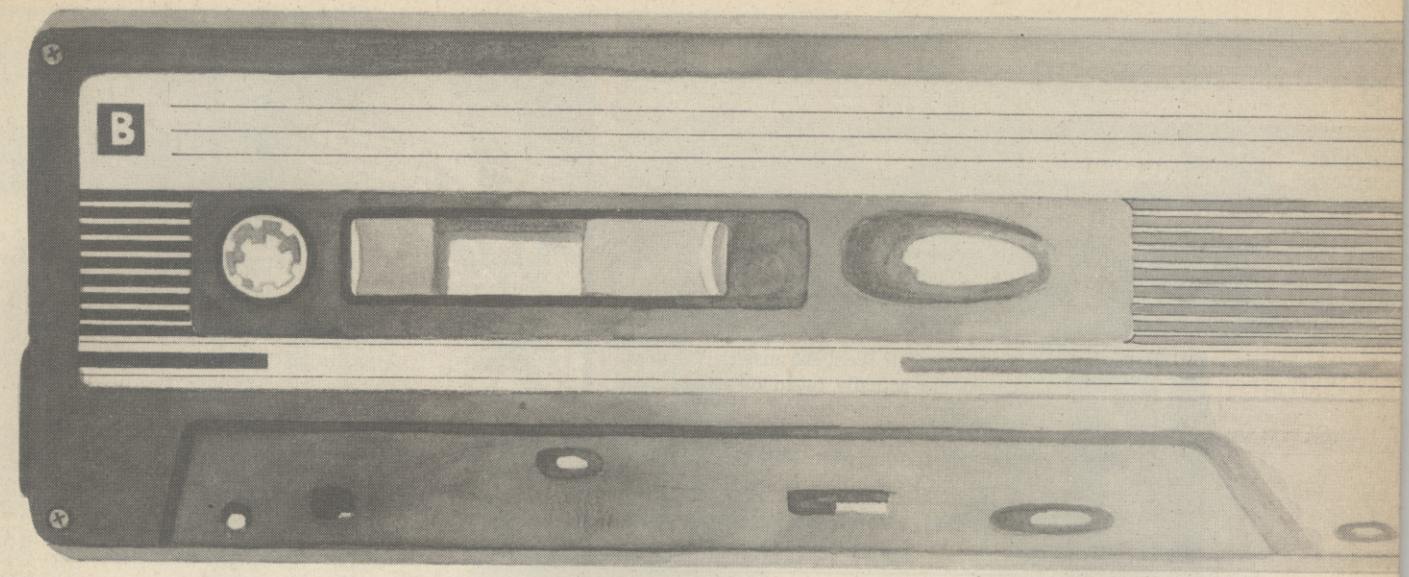


TURBO LOADERS

How they work, and when they don't . . .

Ever wondered how the fast-loading systems on commercial software work? And why they give you more bad-load headaches than ordinary tapes? David Bolton explains all and gives a few simple tips for better loading.

by David Bolton

Do you remember the Bad Old Days (not so long ago) when your favourite program took around ten minutes to load? The problem has got worse now that programmers have explored nearly every nook and cranny in the 64, carving out up to 56K of memory for themselves. Since most of that is hi-res graphics, you could wait up to twenty minutes for such a program to load — rather like queuing at Sainsbury's.

So it's loud applause for Turbo loading systems which can speed up the normal 50 bytes (or characters) per second loading time tenfold — and that's faster than the 1541 disk drive.

Types of fast loader

You've probably noticed the many different brand-names for Turbo loaders, but they all fall into two basic categories: those that leave the screen blank whilst loading, and those that either flash gaudy colours or leave you to stare at a picture.

The less complicated is the blank-screen version. Not to get too complicated, the reason for that lies with the VIC chip, which manages all the video work. VIC uses a lot of memory and, quite often, the processor needs to be stopped whilst it's working. This affects timing, and since the cassette unit needs very precise timing, it's a good idea to turn the screen off.

The second type is a lot less boring to look at, but you pay the price of a slower loading speed — about five times the normal speed. Some of these loaders need two timers to count down to zero exactly when a signal was received from the datasette.

How they work

First, let's look at the way a program is saved on to tape. When you plug your datasette into the Commodore 64, you're effectively making four connections. There's the 'read' line (data flows to the 64 from this), the 'write' line (for saving programs), a 'sense' line that detects keys pressed on the datasette and the power line for the motor.

To save a program to tape, each byte is picked up out of memory and is then rotated eight times (remember there's eight bits in a byte), with each bit (either a 0 or a 1) going to tape one by one — pretty pedestrian, eh?

How does the datasette distinguish a 0 from a 1? The signal on the tape is either high or low and the 'read' line is wired to an interrupt pin on one of the Input/Output chips. So when the signal goes from high to low, the I/O chip signals an interrupt. So far so good. The time between interrupts is measured using the I/O chip timers, and this determines if the bit is 0 or 1.

So to speed up the loading time, you simply shorten the times for the 0 and 1 bits, by changing the clock speed — cunningly simple.

By the way, the Commodore system is a little more sophisticated. In normal mode, it manages to send only 800 bits per second (that's 100 bytes). Remember, I told you it ▶

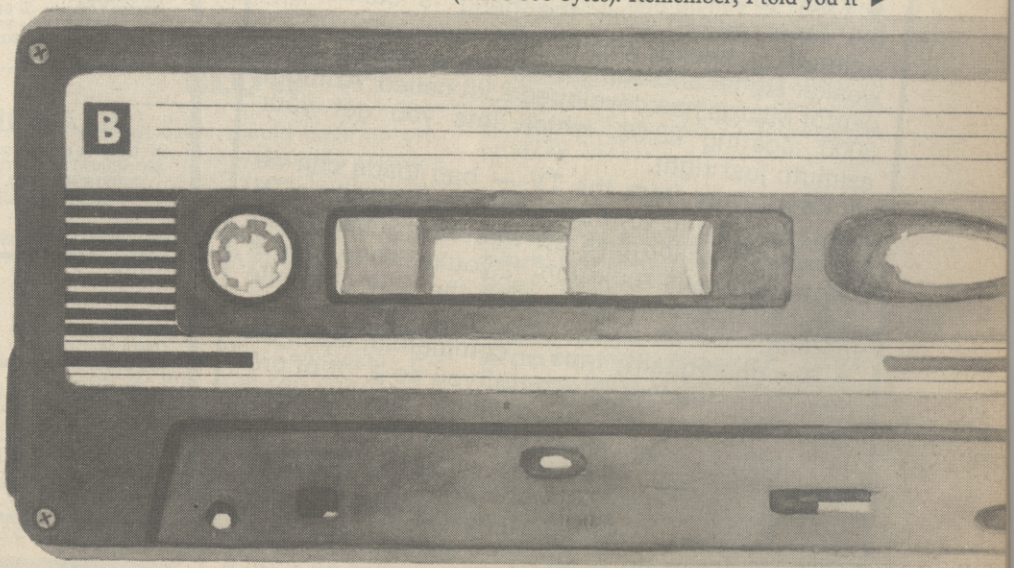
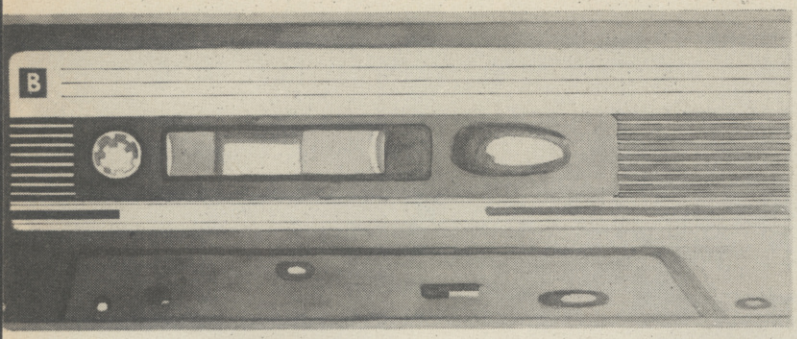


ILLUSTRATION: TONY ANSELL



TURBO LOADERS

loads in at 50? Well, the answer is that two copies are actually saved on to tape and compared when loading. So the other method of speeding up loading is to copy the load routine from ROM to RAM and rewrite it so that data is only saved once.

Troubleshooting with fast loaders

Avid gamesters won't need me to tell them that there are many faults with fast-loading tapes. Not only do they throw up more load errors, you're more likely to have to dash down to your dealer and change them.

Why all these problems, and what can you do about them? Well, some things are out of your hands. Such as the duplicators used to copy tapes; many of them just can't handle the high speeds. For example, if a duplicator works 32 times faster than normal, it's copying a Turbo tape (eight times faster than normal) at 256 times the Commodore 'intended' speed — phew.

Now the duplicators have got their act together, there are still problems — with Commodore datasettes. Rumour has it that some newer models (all manufactured in the Far East) have inferior tape heads that have a genuine dislike for Turbo-tapes. But if you've successfully loaded tapes on your machine, don't worry.

Here's a few simple tips for better loading:

- **Keep your heads clean** — the most likely cause of bad loads is dirt (oxide from the tape) getting on the read/write head. Use a good-quality tape cleaner, preferably the liquid type. They're pretty cheap, too.
- **Keep your heads aligned** — the angle at which the tape passes over the head is called the 'azimuth' angle. If this is not exact, you get a weaker signal and consequently a bad load. Interceptor Micros has developed a kit called 'Azimuth 3000' costing £8.99, which lets you get your azimuth just right.
- **Keep away from the TV** — bad loads can be caused by using your datasette too close to a TV or monitor, which give off whacking amounts of electromagnetic radiation. If you're working in a cramped space, simply switch the telly off while loading.
- **Buy good-quality tape** — commercial tapes are usually of good quality, but if you do a lot of programming, buy only good-quality tape which is not prone to oxide shedding. That should help to eliminate the 'dirty-head' problem already mentioned.

So now you know how Turbo loaders work and what you can do to get your games running as quickly and easily as possible — after all, that's what Turbo systems are all about. Happy loading.

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THE HAPPY HACKER

by Robert Schifreen

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HACKERS ON COMPUNET

Avid browsers round Compunet's "The Jungle" area will have noticed a new section called "Hacker's Hangout", which looks as though it's going to be a mine of information for dedicated code-busters and digital safe crackers.

The section contains around one hundred phone numbers for private viewdata systems and bulletin boards for you to try out — and most of them you can get for free. Nearly all these work on the 1200/75 baud rate that's standard on the Commodore modem, but you'll need 'terminal emulator" software (written by Y2 Computing and downloadable for £10) to get cracking.

Notable inclusions are Thomson's viewdata system for travel agents, IBM, the BBC's Microlive bulletin board and Optel (never heard of it). Apart from phone numbers, there's also hints and tips on breaking into the aforementioned, the idea being that a successful hacker will impart his or her knowledge to the rest.

So what does Compunet think about all this, considering that a test-case involving our very own Robert Schifren, is due to take place in the courts?

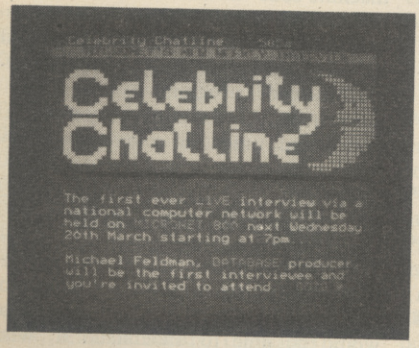
Compunet's official line is that any information in The Jungle is the responsibility of whoever put it there. "We can't exercise that type of editorial control", said a spokesman. "We act merely as the carrier — but that doesn't mean we condone it". Nothing like sitting on the fence.

CHATLINE CHAT

Meanwhile on Micronet, a much less controversial activity is capturing the punters' imagination. Last month in HH, we reported Micronet's new Celebrity Chatline service which allows subscribers to send questions and messages to an on-line Celebrity.

Michael Feldman, the man behind Channel 4's "4 buffs on 4" program was first to get the treatment, followed by some more not-quite celebrities. So when is Micronet going to come up with some real household names?

Well, not for some time. Lined up for future sessions are Rob Cousins, the man behind the SoftAid games tape, and Kevin Maxwell, son of The Great Newspaper Proprietor and boss of Mirrorsoft — hmm, sounds a little more interesting. You'll find future dates and times posted on Micronet.

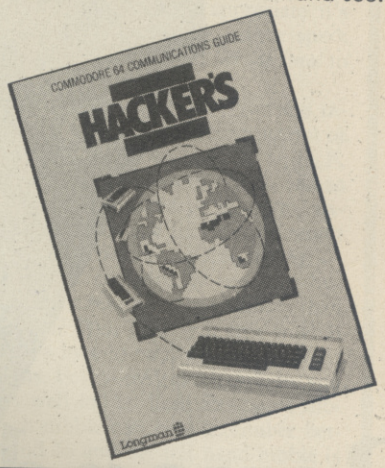


SOFTENING THE BLOW

Compunet users should have no problem up- and down-loading software from their system. Not so for the unfortunate Commodore contingent on Micronet who have suffered in silence since Micronet was made available to them.

But according to Micronet software boss, Phil Godsell, the new terminal software from Y2 Computing will change all that. You can download it free to replace the former offering from now-defunct OE.

"It cost us a pretty penny" reveals Godsell, "but it will work with 80-90 percent of Commodore software". So we should see a lot more Commodore material in future, covering games, utilities and business. We wait and see.



THE HACKER'S HANDBOOK MARK 2

No, this isn't the book that caused such a stir a short while ago. This version by Geof Wheelright and Ian Scales (unfortunately it's got the same name) looks like being a much more 'respectable' offering — since Longman's the publishers, describe hacking as merely "communication between one computer and another".

The book is a brief and well-designed introduction to communications: how to get started, the equipment and software needed, and ideas and information on the possibilities opened up by computer communications. There's also a generous number of screenshots that give you an idea of the types of information you can call up.

But for those of you who'd rather do something more practical than just browse around in the likes of Compunet and Micronet, there's information on electronic and on-line services provided by British Telecom, Prestel and major financial institutions.

Although the series covers the most popular micros, there is a Commodore 64 version, costing £5.95. More details on 0279 26721.

To win the pristine copy we have here in the Commodore User office, send us a joke about Hackers that we'll actually laugh at. On a postcard please to: Hacker Joke, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU.

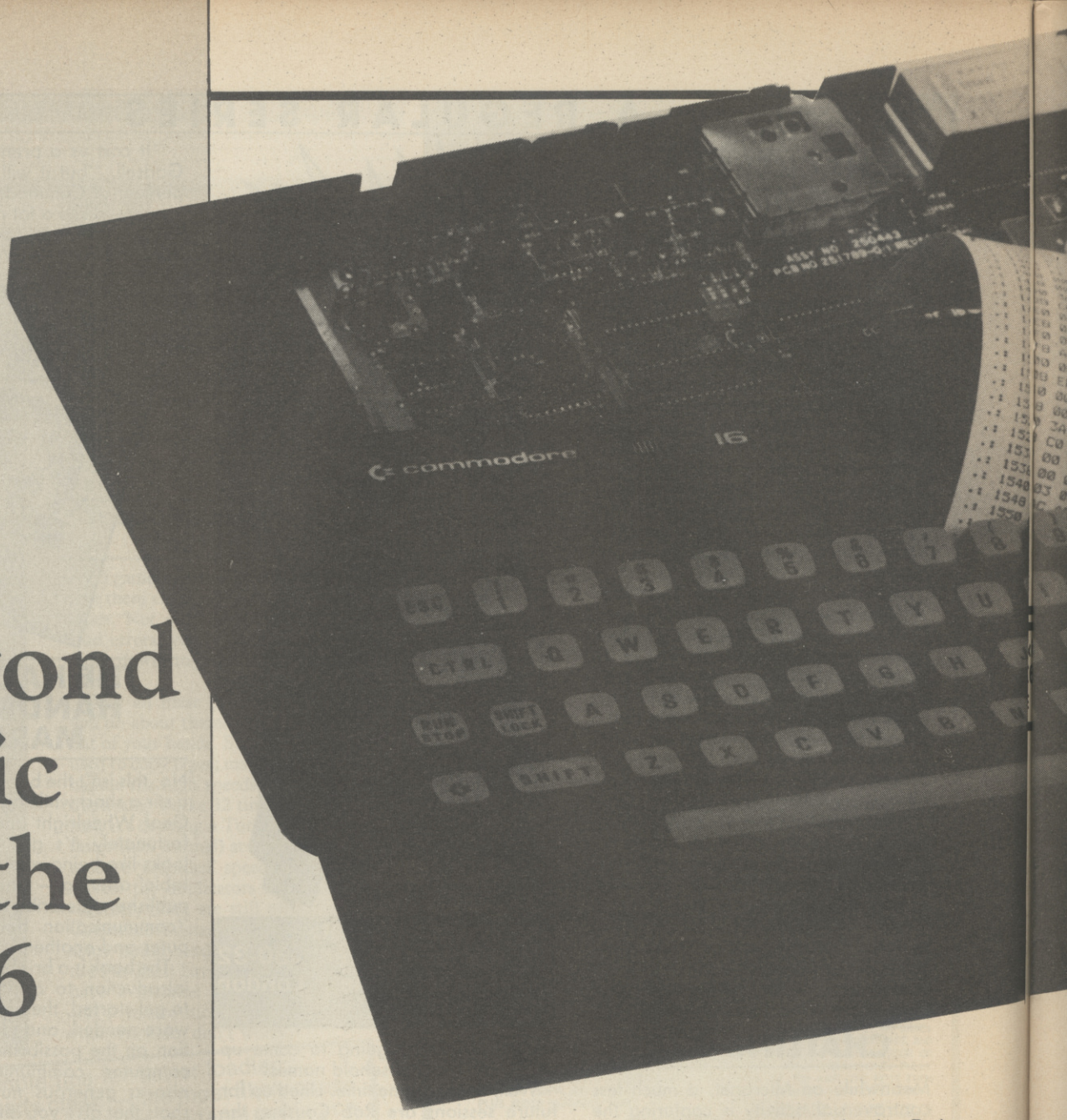
What's on Micronet and Compunet

Beyond Basic on the C-16

Part 1: introducing TEDMON

Why are the Basic programs you've managed to produce on your C-16 never as slick and spectacular as the games you buy in the shops? Simply because they're not written in machine-code. But don't panic: machine-code won't make your hair fall out, especially since the 16 has TEDMON, a built-in machine-code monitor. Here's a nice 'n' easy introduction to using it. Next month, we'll be running through some example programs.

by Ken McMahon



I can't promise you that, by the time you've read this article, you'll be able to sit down and write the next megagame. But you will at least have taken your first steps in machine-code programming and, after all, everyone's got to start somewhere.

What is machine code?

The simple answer to the above question is that machine-code is the language that the microprocessor (the bit that does all the work) in your C16 understands. IF you thought it understood Basic, then, in a sense, you'd be right. But, when you RUN a Basic program it's converted into machine-code before the microprocessor even gets a look at it.

Think of it this way. Suppose you had an Italian friend and you wanted to speak to him, but you don't speak Italian. Well, you'd have to get hold of an interpreter, tell them in English what you wanted to say, and they would pass the message on to your friend in Italian.

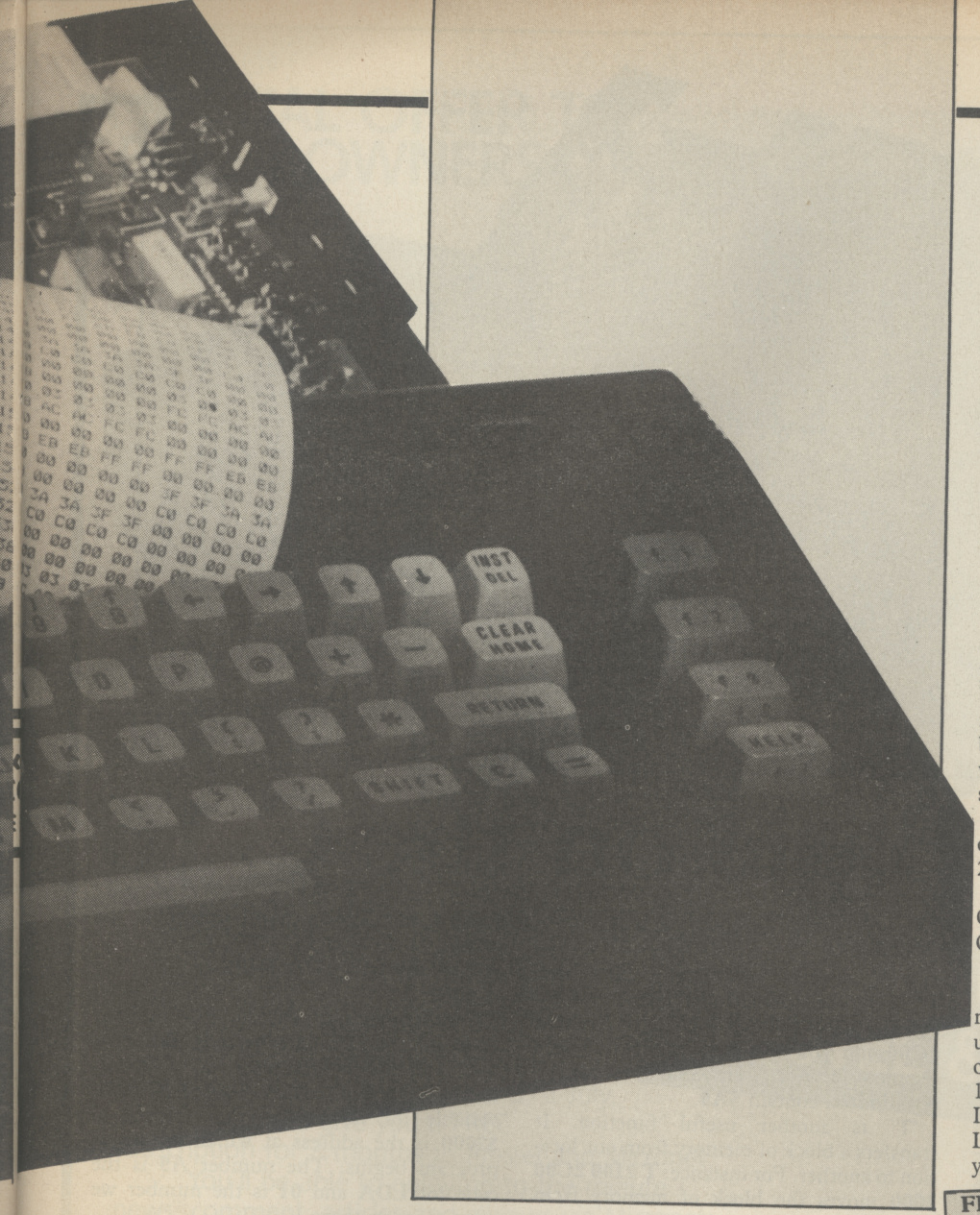
The C16's interpreter is the Basic ROM. It's actually a 4K long machine-code program that the nice people at Commodore put in the C16's memory so that you could talk to it in Basic. That's why there is only 12K of the C16's total 16K memory available for your programs.

So why all this messing about with interpreters? Why doesn't everybody just learn machine-code instead of messing about with a language that has to be interpreted before the computer can even understand it? The answer is quite simply that a machine-code program is just a list of numbers and is, therefore, very difficult to understand, unless, of course, you happen to be a computer.

Speaking Italian

You may have gathered that I've not been totally honest up to now. If machine-code was just a bunch of numbers then no one would be able to understand it, would they? To find the answer to this one we'll first have to look at how the computer holds numbers.

Your C16, being an electronic machine,



understands only two numbers — on and off, or, put another way, zero and one. So, how does it count up to two, or for that matter two thousand? *Binary*, that's how.

Binary, or base 2, is just another way of counting, like decimal. In the decimal system, when you get to nine, you carry over a one to the next column, which represents ten times the amount of the column to its immediate right. The same thing happens in binary, except you run out of numbers at one, instead of nine, and so have to carry one over. Binary then, looks like this:

Binary	Decimal
00001	1
00010	2
00011	3
00100	4
00101	5
01010	10
01111	15
10100	20

So, while our decimal columns go in order of units, tens, hundreds, thousands etc. binary columns go units, twos, fours, eights, sixteens, and so on. To get the hang of it, try converting a few decimal numbers into binary numbers and back again.

Bits and Bytes

Imagine the C16's memory as being made up of thousands of little boxes. Each of which has an address, so that you know where to find it, and each one can hold a number between 0 and 255. This is actually how the computer's memory is organised. Each column of our binary number is called a bit, which stands for BInary digiT.

The little boxes in the example each contain one BYTE of data. A byte is an eight digit binary number and, hence, contains eight bits. Now you can see why our little box, or byte, can only hold numbers up to 255. It's because the binary number 11111111 is 255 in decimal.

Try this experiment on your C16. The POKE and PEEK commands allow you to put and retrieve numbers to and from the computer's memory in Basic. Type in **POKE 1000, 255/RETURN**. Now, just to check that it's there, type in **PRINT PEEK (1000)/RETURN**, and you'll get the answer 255.

If you try to POKE **1000, 256/RETURN**, the computer will respond with ILLEGAL QUANTITY ERROR, because the number you tried to poke in was too big for the byte to hold — a case of byting off more than you can chew . . .

Hexadecimal

Right, now you've mastered binary I'm afraid there's another number system to contend with, but this one actually makes life easier rather than more difficult. If you tried converting binary numbers to decimal earlier on, you'll appreciate it's not an easy task. So some bright spark (probably a Greek) invented *hexadecimal* to make the job easier.

Hex, for short, has sixteen numbers instead of the usual ten. After running out of numbers at nine, it goes A, B, C, D, E, F, then, rather belatedly, on to 10, 11, and so forth. The hex columns go in units, sixteens, two hundred and fifty sixes, I won't bother with the next one (O.K. 4096).

Perhaps you can already see that hex bears more of a resemblance to binary than decimal. No? Well look at it this way. If you divide a byte in two, you get two four bit sections. For all the good it will do, you might as well know these are called nibbles! Each nibble can hold a number between 0 and 16 and the left hand nibble is sixteen times the right hand one.

For example, take the binary equivalent of 255, which looks like this: 11111111 = 255. Or, as two nibbles: 1111 and 1111.

On the left side: (1111=15) *16 = 240
On the right: 1111 = 15
total = 255

Now, in hex we don't have to do any multiplication, because our left hand column is already sixteen times the right hand one, so

1111 = F : 1111 = F : total = $FF

Incidentally, the $ sign stands for hex. Look at the examples in Figure 1 to help you get the hang of it.

FIGURE 1
00010001 : 0001 = 1 : 0001 = 1 : total = $11 (17)
10001000 : 1000 = 8 : 1000 = 8 : total = $88 (136)
11100110 : 1110 = E : 0110 = 6 : total = $E6 (230)

Hopefully, you can see that it's much easier converting from binary to hex, than to decimal. Don't worry if you can't get the hang of it straight away. It takes some adjusting to!

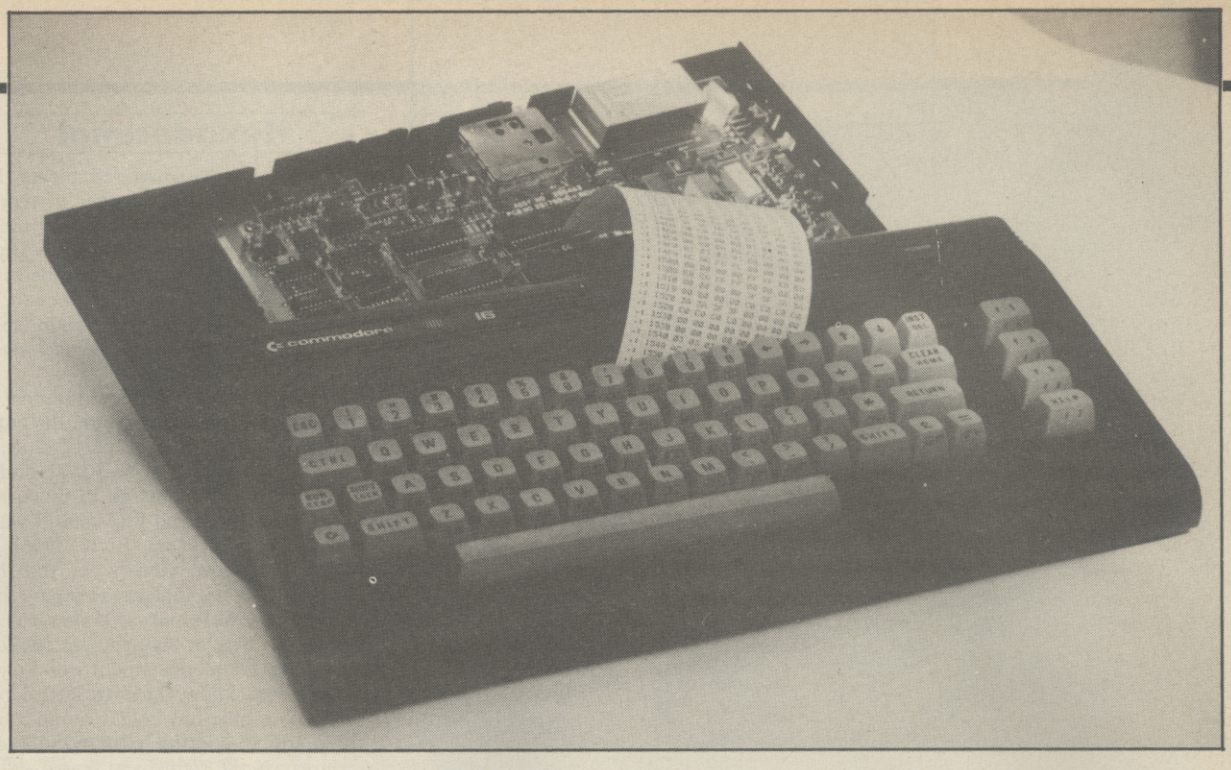
Try converting decimal numbers into hex and back again. You can use the C16 to check your answers. To convert a decimal number, xx, to hex, type **PRINT HEX$ (xx)/RETURN**. To go from hex to decimal, type **PRINT DEC ("xx")/ RETURN**.

Before we get off numbers there's one last thing. Obviously, the C16 is capable of manipulating numbers much larger than 255. The way it does this is to stick two bytes together, making a kind of sixteen bit superbyte, which can hold any number between 0 and 65535.

Using TEDMON

That's the theory out of the way. Now we can start learning about machine-code the best way, by examining the insides of the C16. No, no, put that screwdriver away: we're going to examine the C16's memory using TEDMON, the inbuilt machine-code monitor.

Monitors like TEDMON allow you to



Beyond Basic on the C-16

do much more than just look at memory locations, and are an essential tool for the machine-code programmer.

Simply type MONITOR and press Return to enter TEDMON. The first thing that happens is that the contents of the microprocessor's registers are displayed.

The first of these, **PC**, is the Program Counter and it contains the current address of the machine-code program being carried out. Of course you can't see this while a program is being run, so PC usually contains the last address of a program that has just finished.

The only other registers you need bother with for now are **AC, XR,** and **YR**.

AC is the accumulator, or **A register**. This is the register that does all the calculations like addition and subtraction. **X** and **Y**, though not exactly the same, are very similar. They are the microprocessor's only other working registers and are used mainly for counting and a method of getting data from memory called Indexed Addressing, which I'll come to later.

'M' displays a section of memory. Try typing: **M 8188 8382** then Return. (Don't forget to enter TEDMON first by typing MONITOR.) Slow the display down by pressing the Commodore key. If you leave out the second address (M 8382), the first 96 bytes of memory, from $8188, will be displayed, just enough to fit on the screen.

The number on the left of your screen is the address of the memory location you are looking at. Following this, the contents of the next eight bytes are shown. The characters on the right are the chr$ equivalents of the codes in that section of memory. If they look familiar, it's because the section of memory you are looking at is the reserved word table in the interpreter ROM. It contains all the Basic keywords, and a few other things besides.

Move commands

The **'F'** command allows you to fill an area of memory with a particular number. Type in: **F 2000 2C00 A9**. Now type **M 2000 2C00** and you will see that every single memory location from **$2000** to **$2C00** does indeed contain **$A9**.

'T' is another useful function. It transfers a block of memory from one location to another. For instance: **T 2100 2C00 2000** moves the block of memory from **$2100-2C00** to a new location starting at **$2000**.

The Hunt or **'H'** facility enables you to search through a block of memory for all occurrences of a particular number. Type: **H 8000 9000 A0**. The numbers which appear on your screen are the addresses of all the locations between **$8000** and **$9000** which contain the number **$A0**.

Hunt can also be used to find the location of a particular character, or group of characters. Try typing: **8000 9000 'COMMODORE BASIC**, and you will be given the address **$80CF**. Check this using the **M** command and you will find the message the C16 puts on the screen when you switch on.

'S' allows you to save a machine-code program to tape or disk. Always save a program before running it, or you may never see it again. To save a program starting at **$2000** and finishing at **$3000** type: **S "PROGRAM", 1, 2000, 30001**. If you are using a disk drive change the ,1 to ,8. To load the same program, just type **LOAD "PROGRAM", 1** (,8 for disk users).

Your first program

'A' is the command that tells TEDMON to *Assemble* a line of machine-code. Type in **A 2000 LDA #$01**. When you press Return, the following will appear on the screen:

A 2000 A9 01 LDA #$01
A 2002

Congratulations, you've just written your first piece of machine-code. But what does it all mean? Well, what you've done is to LoaD a register called A (think of it as a variable for now) with the number 1. **$2000** is the address at which our short program begins. The number **A9** is the code for **LDA** and **01** is the number we want to go in there.

LDA #$01 is actually an assembly language instruction. I think you'll agree, it's much easier to remember than A9 01 and TEDMON does the conversion for us.

You'll notice the cursor is blinking on the line below next to **A 2002**. This is because the monitor is waiting for you to enter the next assembly language instruction in the program. It goes at address $2002 because the first instruction occupies two bytes. For now, break out of the assembly by pressing Return, as there is one other command you should know about.

It follows that if assembly language can be converted into machine code, then the reverse is also true. The Disassemble, or **'D'** command, will turn a block of code into assembly language. Type in **D 2000/RETURN** and you will see the one-line program you typed in a few moments ago. If you want to see a more substantial program, type **D 9000** and you will see part of the program that makes up the Basic ROM. Assemble and Disassemble are the two most powerful commands available on TEDMON and, probably, the ones you will use most.

That's all for now but, next month, we'll be ending this mini-series by writing a few short machine-code programs. Stay tuned. □

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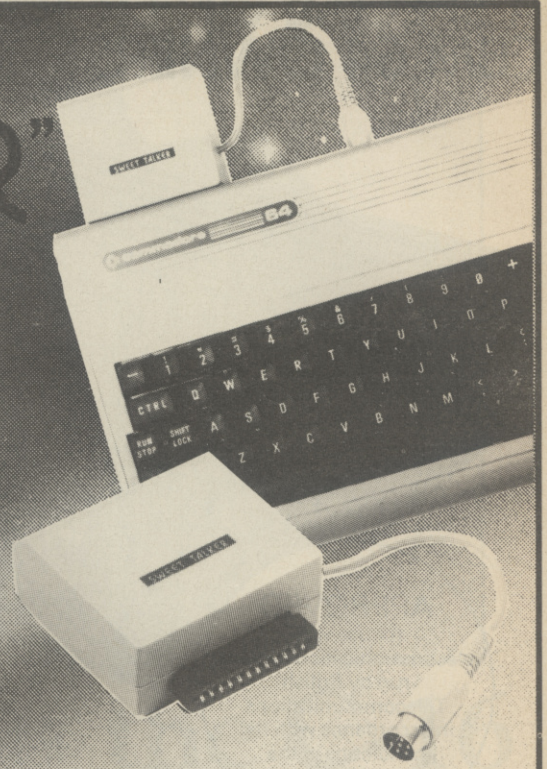

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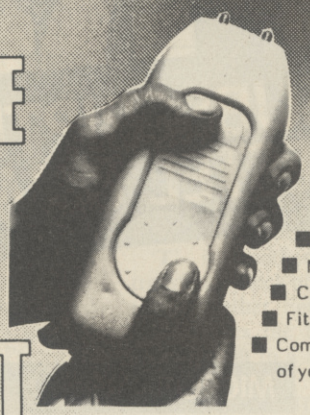

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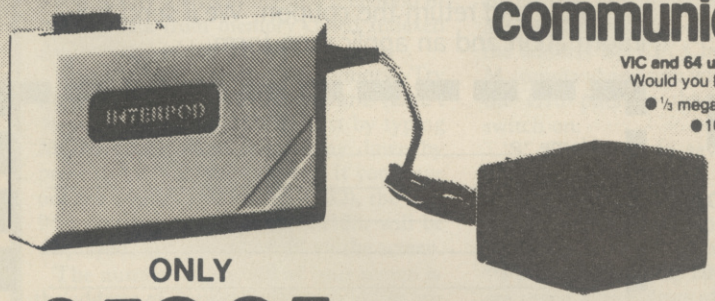

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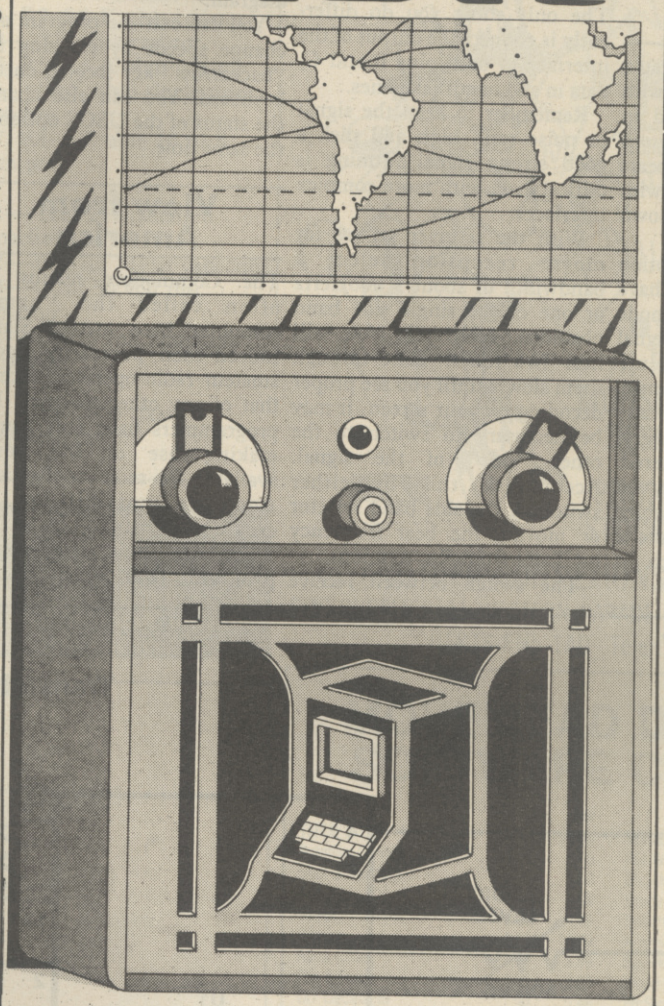


Part 4 — introducing radio teletype

by Jim Grubbs

Now that we've reached the final part of our series, it's time to introduce radio teletype, or RTTY. What is it? How can you receive it? Simple, you build the interface and use the program provided. Too complicated for you? Don't worry, there's also a comprehensive list of product suppliers.

One of the most interesting special forms of communication available on the short wave bands is radio teletype. Although it takes several different forms these days including different codes and speeds, most radio amateurs still use traditional Baudot teletype code.

Many commercial stations particularly those in developing nations use the same standard. What it means for you is that there are numerous opportunities for listening if you have the proper equipment.

This month I've included a simple teletype program that works well on both the Commodore 64 and Vic-20. You already have an interface that will work for casual monitoring. That interface can be pressed into teletype service as well. If you are interested in transmitting, a relatively simple audio frequency shift keying circuit has been included. Don't worry, I'll also be listing some commercially available products.

It will help to understand a bit of the background surrounding radio teletype before diving into the program.

What is Teletype?

Teletype operation originally was designed for telephone line connections, Enterprising radio men wondered what would happen if the on-off keying from a teletype machine was applied to a morse transmitter. A tube type interface not very different in operation from the one you have built was used to convert the resulting tone coming from the speaker back into a 60 milliamp current loop to run the teleprinter.

The system suffered from static crashes and fading. By switching to a frequency shifted signal there was always a "carrier" present which helped to quiet the receiving equipment. This two frequency method is still used today. It is even the basis for regular computer modem communications.

Waiting for Baudot

Baudot code consists of five bits of data and a start and stop bit. With this arrangement it is only possible to send the alphabet and a single set of numerals and punctuation. Current users of data communication demand greater versatility. That's one reason ASCII code was created, which usually consists of a seven bit code. Commodore computers go this one better and use a special eight bit version of ASCII to enhance the graphic capability.

So you must do two things to make traditional teletype signals decode correctly on your Commodore micro. The first consideration is speed.

There are several standard rates at which computers communicate with each other and their own peripherals. Even relatively slow telephone data circuits communicate at 300 baud, or close to 300 words per minute. Baudot code as used on the amateur bands operates at 60 words per minute or 45.45 baud. That's quite slow, but the real problem is that most computers do not have this speed implemented because it is non-standard.

Commodore computers do have 50 and 75 baud implemented. Some transmissions occur at these speeds, 50 baud being 67 wpm and 75 being 100 wpm. Implementing 60 wpm takes a bit of magic. By doing some quick mathematics the values necessary to POKE into locations 665 and 666 can be calculated for this speed. For a complete description of these memory locations check the programmers reference guide.

The formula is included in the RTTY program listed here so that any speed can be implemented. All you have to know is the baud rate. **Lines 200** to **230** contain the necessary mathematics to calculate the POKE values.

Keep in mind that Baudot code is a five bit code, while the computer normally expects eight. But we can use the OPEN command in **line 150** to open the RS-232 for Baudot code.

That puts us on the right track but unfortunately the relationship between Baudot code and ASCII is not quite that simple. A "00001" in Baudot is an "E" while "01000001" in ASCII is an "A." If you throw out the high order bits that makes the code the same, so some interpretation is necessary.

By allowing your computer to continue to "think" in ASCII

you can fool it into properly printing what it receives. By indexing the received value into a conversion table the proper characters will appear on the screen or be transmitted from the keyboard. Just remember, the computer really doesn't care that you are receiving or transmitting Baudot . . . it continues to think and operate in ASCII.

The program explained

The *receive program* is located between **lines 55** and **85** with the *translation table* located in **lines 75** and **80**. The *transmit* portion of the program appears between **lines 235** and **315** with the necessary translations shown in **lines 240** and **245**.

Sometimes during reception the sending station will have shifted from the "figures" mode back to "letters" and this signal gets missed. By adding the unshift on space (USOS) feature, the program will automatically return to the letters mode everytime a space is encountered. This is good for normal text reception, but must be disabled when receiving large amounts of numeric information, such as weather stations.

MICRO-WAVE RADIO

The interface

As mentioned the interface you built to receive morse can be used to receive teletype signals. The only thing you do differently is connect the output of the interface to both pins B and C, data in and handshake lines.

Remember to keep the signal to noise ratio high and pick a good strong signal. Tuning is critical even with more complex interfaces.

With the receiver set up for morse reception select a bandwidth of about 3 kiloHertz or one of the single side band positions. Note that you will hear two tones. Tune through them slowly until you see proper decoding on your screen. It may be necessary to switch to the other "side" of the signal. Accomplish this by either switching the side band selector or moving the beat frequency oscillator from plus to minus.

The switch between receive and transmit is accomplished by hitting the F1 key. Construction of the transmit tone generator is straightforward and details are included on the schematic diagram.

You can exit the program and change speeds by pressing the "backarrow" key located on the keyboard. You can also change the status of the USOS option at the same time.

View from America

The Commodore micros are often called the "hams" computer here in the States. Indeed their popularity among amateur radio operators exceeds that of any other machine. But programmers have only started making use of the power available for radio applications. And the possibilities are exciting.

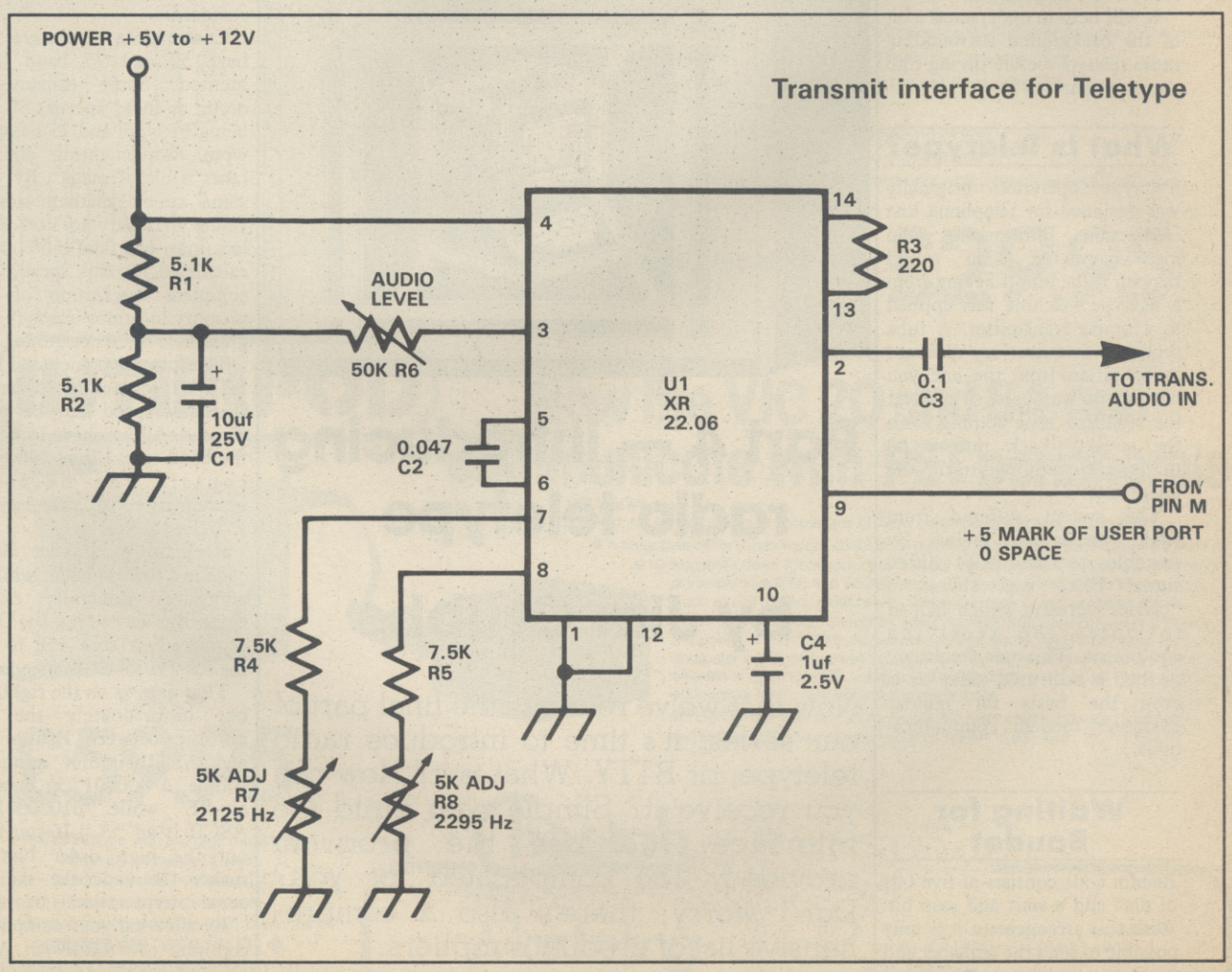
I'm just now reviewing a program that automatically tracks the OSCAR and Soviet RS satellites, and can connect to your antenna rotors to move them into position to properly follow the "birds" as they fly overhead. All of this can be done even with an unexpanded Vic-20!

Other programs exist for turning the Commodore-64 into a dual trace oscilloscope unit. There are so many possibilities for both relatively simple and very complex uses. I hope you'll let me know what your interests are. Why not drop me a line at P.O. Box 3042, Springfield, Illinois 62708, U.S.A.

Last words

For now it's 73 (best wishes) from the Grubbs Ham Shack. I hope you have enjoyed this introduction to amateur radio applications. Perhaps one day we will have the chance to chat on the air. It would certainly be my pleasure.

If you're not technically minded but would still like to try out some of the applications covered in this series, here's another list of suppliers for both software and interface units.



● **ICS Electronics**, P.O. Box 2, Arundel, West Sussex, has a combination unit of both software and interface, called the MP-64 (and MP-20 for the Vic), but no price available at print time.

● **Zero Electronics** at 149 Kingstreet, Great Yarmouth, has the Com-In 64 expansion board for around £100. It includes transmit/receive on morse, teletype, slow-scan television and several other features — some users have expressed difficulties with it.

● **Grosvenor Software**, 22 Grosvenor Road, Seaford, East Sussex has a professional quality RTTY transeiver program for both the Vic and 64 costing £10 for the Vic, and £14 for the 64 on tape — disk version also available.

● **MFJ Enterprises**, P.O. Box 494, Mississippi State, Mississippi 39762, U.S.A. have a low-cost interface similar to the one described in this series. It decodes both morse and RTTY signals, and costs around $69 U.S.

● **Kantronics** of 1202 East 23rd Street, Lawrence, Kansas 66044, U.S.A. is offering the Interface II, at $200 U.S. It also has a range of morse, teletype, ASCII and AMTOR software.

● **AEA**, at P.O. Box C2160, Lynnwood, Washington 98036-0918 U.S.A. is offering the CP-1 Computerpatch, perhaps the most popular device around at $175 U.S. (it's identical to the one offered by ICS above). Like Kantronics, AEA also has an extensive range of software.

Parts List

R1, R2--5.1 K ohm resistor
R3-----220 ohm resistor
R4, R5--7.5 K ohm resistor
R6-----50 K ohm single turn trim pot
R7, R8--5 K ohm 10 turn trim pot

C1-----10uf 25v tantalum capacitor
C2-----0.047uf Mylar capacitor
C3-----0.1uf 50 volt disc capacitor
C4-----1uf 25 volt tantalum capacitor

U1-----XR-2206 Exar integrated circuit

One final word: before you can start transmitting, you must hold a valid radio operator's licence. To transmit without one constitutes an offence.

```
50 GOTO 150
55 POKE 665,R:POKE 666,Q
60 LS=-1
65 LF$=CHR$(10)
70 CR$=CHR$(13)
75 L$="E"+LF$+"A SIU"+CR$+"DRJNFCKTZLWHYPQOBG*MXV*"
80 F$="3"+LF$+"- '87"+CR$+"$4',!:(5')2£6019?&*./;*"
85 GET£2,C$:IF C$="" THEN 120
90 C=ASC(C$):IF C<1 OR C>31 THEN 85
95 IF LS THEN C$=MID$(L$,C,1)
100 IF NOT LS THEN C$=MID$(F$,C,1)
105 IF US$="Y" AND C$=" " THEN LS=-1:REM USOS
110 IF C$<>"*" THEN PRINT C$;:GOTO125
115 LS=(C=31)
120 GET A$:IF A$="" THEN 85
125 IF A$="L" THEN LS=-1
130 IF A$="_" THEN CLOSE 2:GOTO 150
135 IF A$="F" THEN LS=0
140 IF A$=CHR$(133) THEN GOTO 235
145 GOTO 85
150 OPEN 2,2,0,CHR$(96+1)+CHR$(0)
155 US$="Y":PRINT "[CLS][2CD]USOS (Y/N)"
160 INPUT US$
165 BR=60:PRINT "[CLS][2CD]WHAT SPEED":PRINT "(60,67,75,100 WPM)"
170 INPUT BR
175 GOSUB 200
180 PRINT "[CLS] RADIO POST RTTY RX":PRINT STR$(BR)+" WPM"
185 IF US$="Y" THEN PRINT "[HOM][2CD] USOS ON"
190 PRINT
195 GOTO 55
200 D=1.023E6
205 IF BR=60 THEN B=45.45
210 IF BR=67 THEN B=50
215 IF BR=75 THEN B=56.92
220 IF BR=100 THEN B=75
225 X=INT(D/B+.5):Q=INT(X/256):R=256*(X/256-Q)
230 RETURN
235 PRINT"[CLS][REV] RADIO POST RTTY TX "
240 L1$="CYNIAMZTFKOR\LXVWJEPG^SJUQ"
245 F1$="MDTIDZQORDDLC\]VWSAJPUGFXN^DDDYD"
250 GET X$:IF X$=""THEN GOTO 250
255 IF X$=CHR$(34)THEN X$=CHR$(39)
260 IF X$=CHR$(133) THEN GOTO 180
265 PRINT X$;
270 IF X$=CHR$(13) THEN PRINT£2,"H";:GOTO 250
275 IF X$=CHR$(10)THEN PRINT£2,"B";:GOTO 250
280 IF X$=CHR$(32)THEN  PRINT£2,"D";:GOTO 250
285 X=ASC(X$)
290 IF X<33 THEN GOTO 250
295 IF X<65 THEN X=X-32:X$=CHR$(91)+MID$(F1$,X,1):PRINT£2,
    X$+CHR$(95);:GOTO 250
300 IF X>95 THEN GOTO 250
305 X=X-64:X$=MID$(L1$,X,1)
310 PRINT£2,X$;
315 GOTO 250
```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MICRO CHIT-CHAT

Anirog's Voicemaster reviewed

Science fiction is riddled with talking computers. The most famous, HAL in '2001 — a Space Odyssey', not only bad-mouths his master but manages to banish him to hyper-space. Now you can talk to your 64, with Anirog's Voicemaster, a device that recognises speech and synthesises sound — in the safety of your armchair.

by Stephen Howard

There's no shortage of speech synthesiser packages for the Commodore 64 and there's a variety of different ways in which they work.

SAM or 'Software Automatic Mouth', for example, is an American software-based system which 'manufactures' speech from 64 different sounds or 'allophones'. *Speech 64* from the now insolvent Currah Computors offered a similar approach, only using a special chip on a cartridge. But these allophone based systems are difficult to program if realistic pronounciation and pitch is to be obtained from the keyboard input.

Before now, only one speech recognition unit was available for the 64, manufactured by a small company called William Stuart Systems. The *Big Ears* unit was too slow to be of any practical use, and was never advertised for the 64 other than in specialist electronics magazines.

All this is about to change with the introduction of *Voicemaster*, an American combined speech synthesis and voice recognition unit. It's being distributed in Britain by Anirog and costs a whopping £59.95. For the money you get a speech synthesiser, a word recognition system and a facility for composing and performing music in real time.

A complete package

The unit consists of a small aluminium box, which plugs into the rear joystick port via its integral lead. Supplied with the unit is a headset, which has one earphone (of the personal stereo variety), and attached to this a 'boom' microphone that can be positioned, via a swivel joint, in front of your mouth — just like a helicopter pilot. Also supplied with the unit are two leads, used for routing sound and speech from the computer to the earphone, via the Voicemaster main unit.

The first of the two leads connects to the computer with a DIN plug, which fits into the audio/video port. This lead is used when your television is hooked up to the computer, and it has the advantage that sound can also be heard through the television — you can turn the sound down and use just the earphone if you wish.

The second lead is for use with a video monitor. Since all monitors plug into the audio/video port, the second lead takes its sound from the plug which would normally be connected to the monitor's 'audio in' connection. Unfortunately this means that sound is not available simultaneously through the monitor's own speaker. This is a major disadvantage, since the earphone is of very poor quality, being both tinny and very quiet.

Synthesise your voice

"Ghostbusters Ha! Ha! Ha!" was the cry that set the standard for computer speech. The same technique is used with the Voicemaster unit. Sound is first stored and then played back. This technique is called 'Digital Sampling' and involves sampling the sound millions of times a second, and then recording certain details of the sound each time.

These details can then be used to re-compose a sound similar to the original, but with the advantage that it can be manipulated to sound different, or played on a keyboard.

In this way different pitches, tones, speeds, accents and even languages and non-human sounds can be stored, with the very minimum of effort. This technique has been used by synthesiser players for some time now, to create 'real' instruments on the keyboard.

Voicemaster uses its boom microphone as the sound source and stores the sound patterns in the computer's memory, in a highly condensed form. The sound can then be re-composed and played through the internal SID chip.

Stand by, recording

To record sound or speech you simply type LEARN, followed by a number between 1 and 64 which refers to the word or phrase, so that it can be identified for play-back later. After pressing RETURN, the computer waits for you to say something, records as you speak, and stops recording when you stop speaking.

To play back the speech, you simply type SPEAK, followed by the same number you used when you recorded the speech. It's as simple as that.

Further Basic commands allow you to alter the number of samples of sound taken per second. The higher the RATE, the better the speech, but at the cost of using more memory. Other commands are SPEED and VOLUME, which can be used to give you echoes and Smurf-like effects.

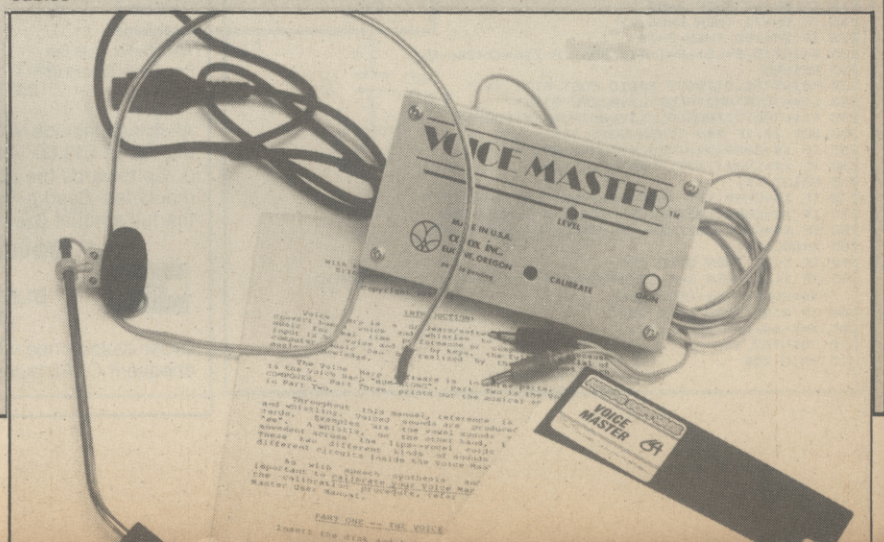
The Voicemaster gives very good quality sound, certainly up to the standard of *Ghostbusters* or *Impossible Mission*. The speech does suffer from some interference, a hiss similar to that found on CB radios and walkie-talkies. I think a better microphone would help overcome this problem to some extent, and one could be easily connected to the standard socket.

Speech Recognition

This is probably the most exciting part of the package. It uses a similar technique to the speech synthesis facility. First you have to record the words to be recognised into memory using the TRAIN command. During the recording you are prompted by a question mark in the bottom right-hand corner of the screen.

Words to be recognised are arranged in groups of eight, to enable you to adopt a menu driven approach. The fewer number of words in each menu, the higher the success rate. The RECOG command, followed by the number or numbers of the sets of eight to be tested, starts the recognition

The complete Voicemaster kit: the device, headset, manuals, software and assorted cables



procedure. A question mark is again used as a prompt, and it again changes as you speak.

After recognition is complete (when you've stopped talking) the computer takes less than a second to work out which word you have said and a simple peek allows you to find which word was spoken.

There are other more advanced commands — including TPUT and TFIND which let you load and save voice recognition data to tape or disk. You could build up quite a speech library.

Generally speech recognition is very accurate when used in quiet surroundings. But the computer does sometimes give completely wrong results, when it's in a slightly noisy environment — even more expensive systems suffer from that problem.

Voice Harp

The third part of the package is a set of three separate programs. The novel idea here is that you can hum, sing or whistle into the microphone and the computer will either hum along with you or write the tune in musical notation.

The first of these programs is called '*Hum-Along*' and it lets the computer play along with your voice in any one of eight preset sounds, or you can make your own sounds up and then load or save them to tape or disk. Other options include a filter for whistling as opposed to humming or singing, and another filter for people with deep voices.

But there's a problem in using the 'Hum-Along' program. You'll probably want to turn the volume of the television up so that you can hear the computer above your own voice, having already given up with the earphone. This causes the microphone to pick up the television sound, which will cause feedback.

Unfortunately the two other programs explained in the manual did not even exist on my disk, these being a song writer and a score printer. These would have enabled me to record my humming masterpiece in musical notation, and then edit it and print it out on my printer. That's probably because I was using an early sample.

Overall, the Voice Harp function seems useful, but too slow to be used for writing songs without a lot of editing later. This would be alright for those who understand music theory and all the notation that goes with it, but the whole idea of the program is to enable people with little musical knowledge to write songs.

Manuals and demos

The unit is supplied with two American manuals which were very disappointing. With a complex and quite expensive unit such as this I expected more than 44 A5 size pages, printed on poor-quality paper. The print quality is poor too, and it is obvious that the manuals will not stand up to repeated reading and checking by the user. There is no order in the presentation, and no diagrams or index.

A number of demonstration programs are also supplied, most of which are in Basic, and so can be listed or modified. These programs include a talking calculator and a speaking clock, and also an excellent program that shows the volume and frequency of sound as a graph in real time.

Conclusions

Voicemaster is definitely worth the price of £59.95 (both tape and disk versions), but for a little extra cost on Anirog's part they could have had a much clearer and better manufactured manual which would have improved things no end. Other than that the unit is great and there are many possibilities open for it. Anirog plans a whole range of software to be available separately.

Voicemaster should appeal to anyone from budding Ghostbusters, to people wishing to experiment with the latest in 64 technology — provided you can spare the money. □

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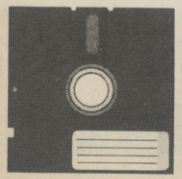
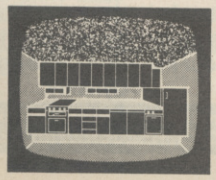

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HOT SHOTS

Welcome to Hot Shots, my name's Mike, I'm the bloke in the picture. Each month I'll be bringing you pages of hints and tips, news, maps and previews. I also want to hear from you. You're the people who go out and spend money and time on the games we write about. If you've drawn a map, got a tip or you want to moan about a rip-off I want to hear from you. This month we kick-off with a map of Elite's tortuously hard and much underrated Airwolf on pages 34 and 35. It comes complete with advice and comments from the programmer himself, Neil A. Bate. If you haven't got the game there's a chance to win it and a whole host of other Elite goodies as well. First of all though some gossip . . .

Mike Pattenden: copies on request

This is the column that shoots first and asks questions later. Each month I'll be bringing you the hottest gossip from the software world. If you want to know who's gone where and who's slagging who, read on . . .

And I'm taking you straight over to London's plush Dorchester Hotel for the highlights of the presentation of a trophy Addictive Games have awarded themselves for the sales of their soccer strategy game **Football Manager**. It has reportedly sold over 100,000 copies — the equivalent of nearly two Manchester United home gates.

There to present the trophy was **Lawrie McMenemy**, hoping perhaps he could learn a few things from the game, because it's the only trophy he'll lift this season.

It was, of course, a game of two halves though Lawrie (not drinking Barbican, I noticed) was none too pleased to find himself in the fourth division. Things went from bad to worse and after losing heavily to Mansfield and Rotherham and going out of the Cup he was looking sick as a parrot.

His immediate response was to ask whether he could get sacked. Yes he could, said the grinning **Kevin Toms**, a Torquay supporter. Lawrie's immediate response was to start axing players left, right and centre. First to go, I noticed, was Steve Williams who had mysteriously appeared on the team sheet. Charlie Nicholas soon joined him on the sidelines.

In fact at the end of the day the best team won (and it wasn't S'thampton) which is why, no doubt, Lawrie acknowledged in his presentation speech that he hadn't been first choice.

They'd originally wanted Tommy Docherty, he confided, but "they didn't know which club to phone". Ron Atkinson was the other choice, but he had a hairdressing appointment, we discovered.

Well it's back to the studio. Thanks Brian and we've got another live report for you from Hewson Consultants, where spring is in the air with the launch of **Gribbly's Day Out**, reviewed a couple of months back.

Kevin Toms receives the trophy from a jealous Lawrie McMenemy

The version we looked at was a pre-release, and I'm glad to say the final offering is even better than we told you it was. There are 16 screens through which Gribbly hops in pursuit of little Griblets. His expression is very mobile and his breath is as bad as we first predicted . . .

Andrew Braybrook, the game's programmer, is definitely worth keeping an eye on in the future. This is his first original program for the 64; before that, he was working on conversions.

I asked him what his views were on the big names. He didn't seem that impressed by what was on offer. Jeff Minter? "He's in a bit of a rut. I like his trait for personalising games but they've got a bit samey. Too hairy." The last comment was reserved for the characters in the games, not the man himself, I think.

Tony Crowther? "He's OK, a bit simplistic. I read somewhere, though, he thinks if you get four or five hours enjoyment out of a game that's value for money. It's not good enough."

Sticking to his words, *Gribbly's Day Out* sells at £7.95, not £9.95 as we were originally told. Andrew's next game is still at the storyboard stage, but it'll be a technorobot thing, with you on a starship performing different tasks with different kinds of robots. Stay tuned . . .

Whilst we're talking programmers, ex-Taskset man **Tony Gibson** has a rather poor opinion of his former boss, Andy Walker. Take a look at the name he's given to one of the nasties in *Ghettoblaster*. I can't tell you what he intended to call his game in our supplement, but I'll leave it to your imagination . . .

With so many stars and personalities lending their names to computer games, **Commodore User** can reveal exclusively that Britain's most famous actress will not be appearing in pixels.

A well-known Australian software house had a £10,000 offer for the rights of *Dynasty* turned down by the programme's American owners. **Joan Collins**, the star in question, plays the devious Alexis Colby — arch rival of millionaire Blake Carrington.

Dynasty's rival in the TV ratings, *Dallas*, was made into a computer game by the American firm Datasoft. The game was not an enormous success — which may explain why no other American software house has successfully acquired the rights to Dynasty.

Joan is reputed to earn £300,000 per episode for Dynasty, and can command several times this for an actual film part so it's not surprising that the offer for an adventure game should seem like small fry.

With the Dynasty name now appearing on just about everything from dolls to lingerie it must surely only be a matter of time until some software house puts together an attractive enough deal to get Dynasty.

If you've got something to say, write to Mike's Hot Shots, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU.

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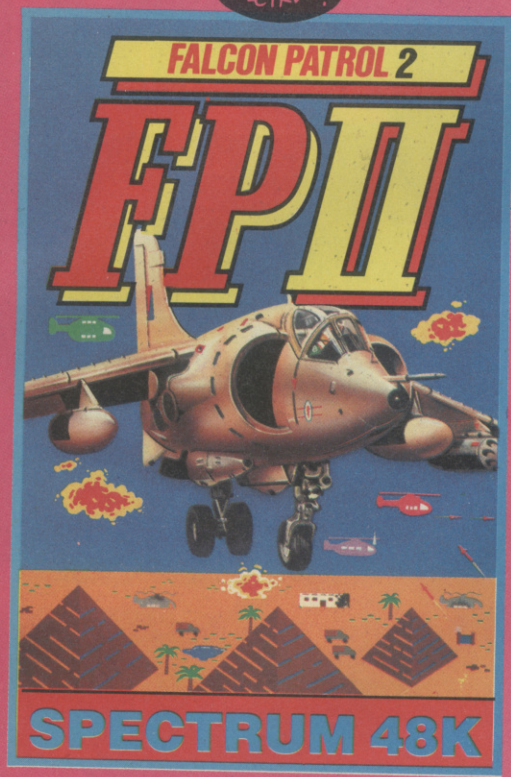

SPECTRUM 48K

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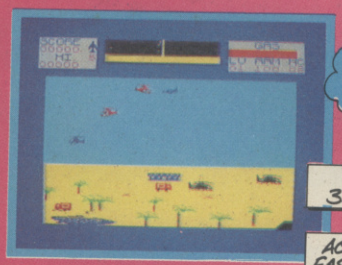

THERE'S NOTHING FOR IT – YOU MUST KEEP COOL AND STAY ON TOP!

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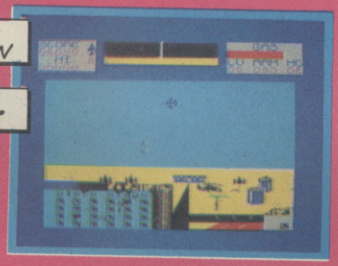

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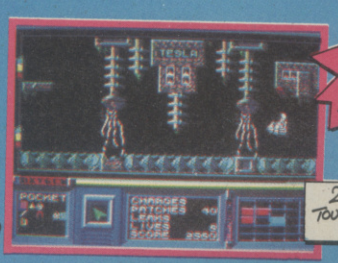

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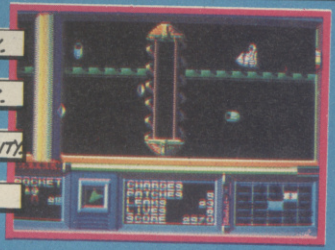

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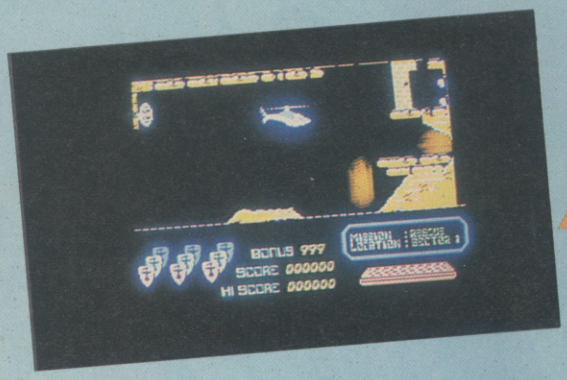
Hot Shots!

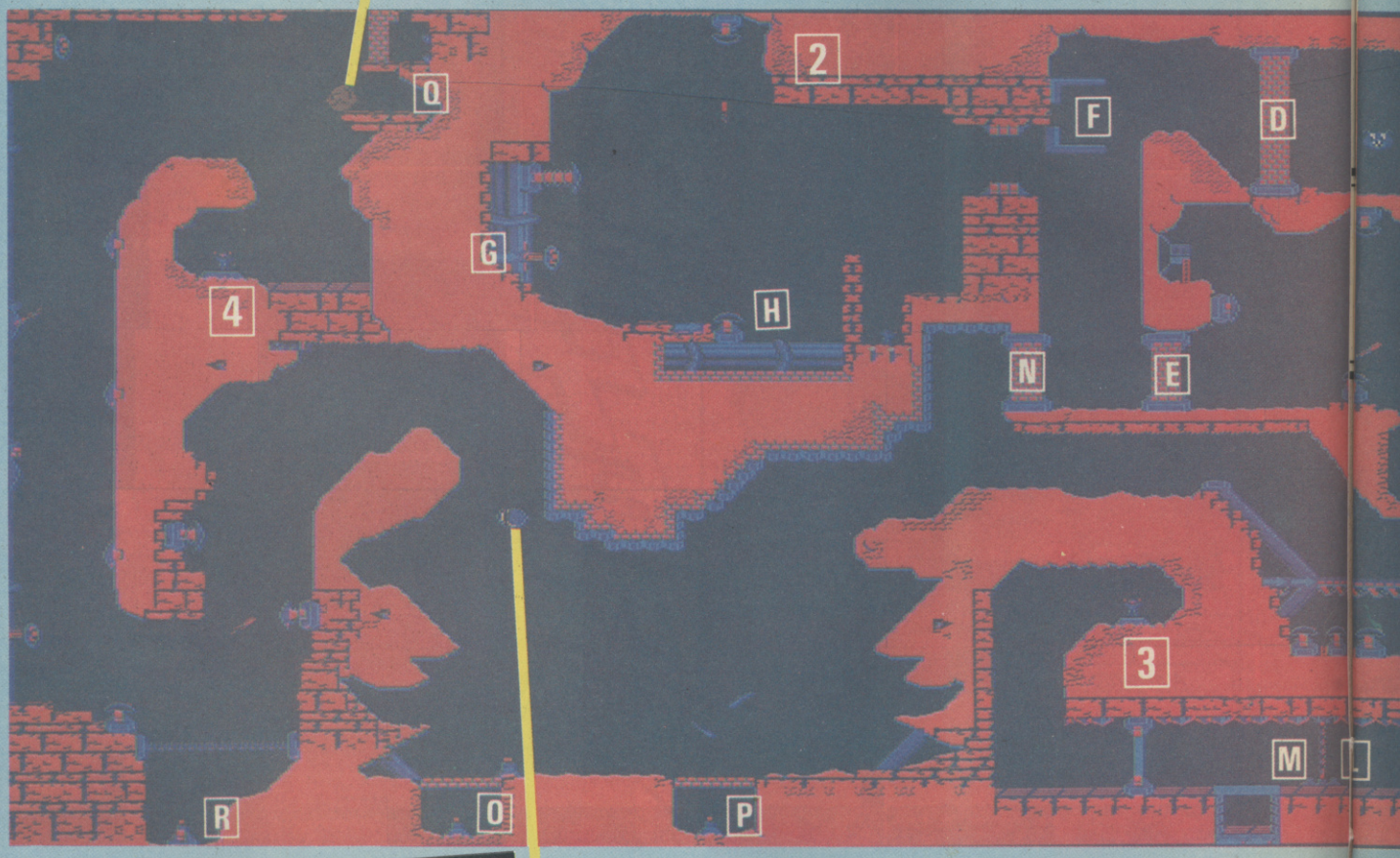
AIR

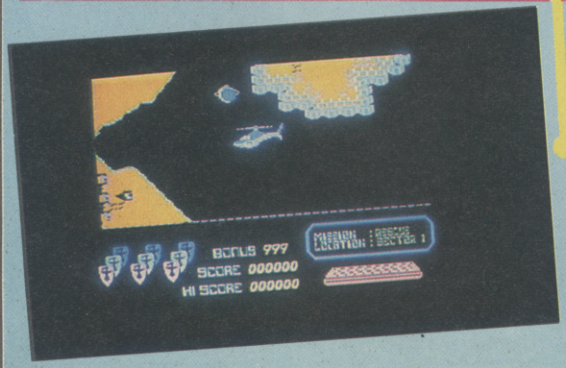


This month's Hot Shots brings you the first ever map of Neil A. Bate's superb but formidable Airwolf, with advice on how to complete it from the programmer himself. The game is divided into five sectors, each containing a man. Rather than print five identical maps cluttered with arrows we've decided to provide detailed text that refers to specified positions throughout.

You must remember to destroy wall **(C)** *every time you begin a new*

PICTURE II: Shoot down the wall above the dropping boulders (Q) and the pin directly behind it. Do not try and rescue your man, but return down to the bottom and clear the laser line. Then shoot pin (R) and return back up to the top. Your way is now clear to rescue your man.



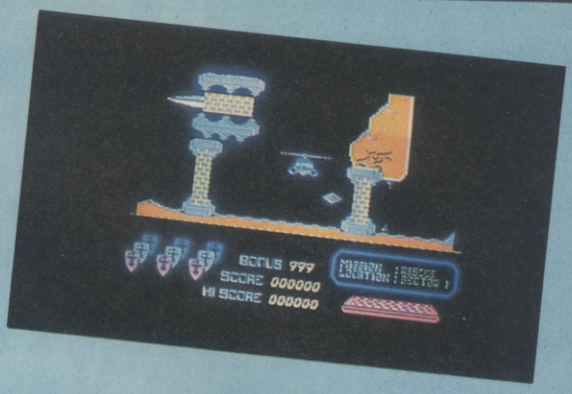


PICTURE I: Shoot pin (P) and then (O). The planet blocking your route will now begin to fall. Destroy it before it hits the bottom, because it will activate a destruct button. Your way is now clear.

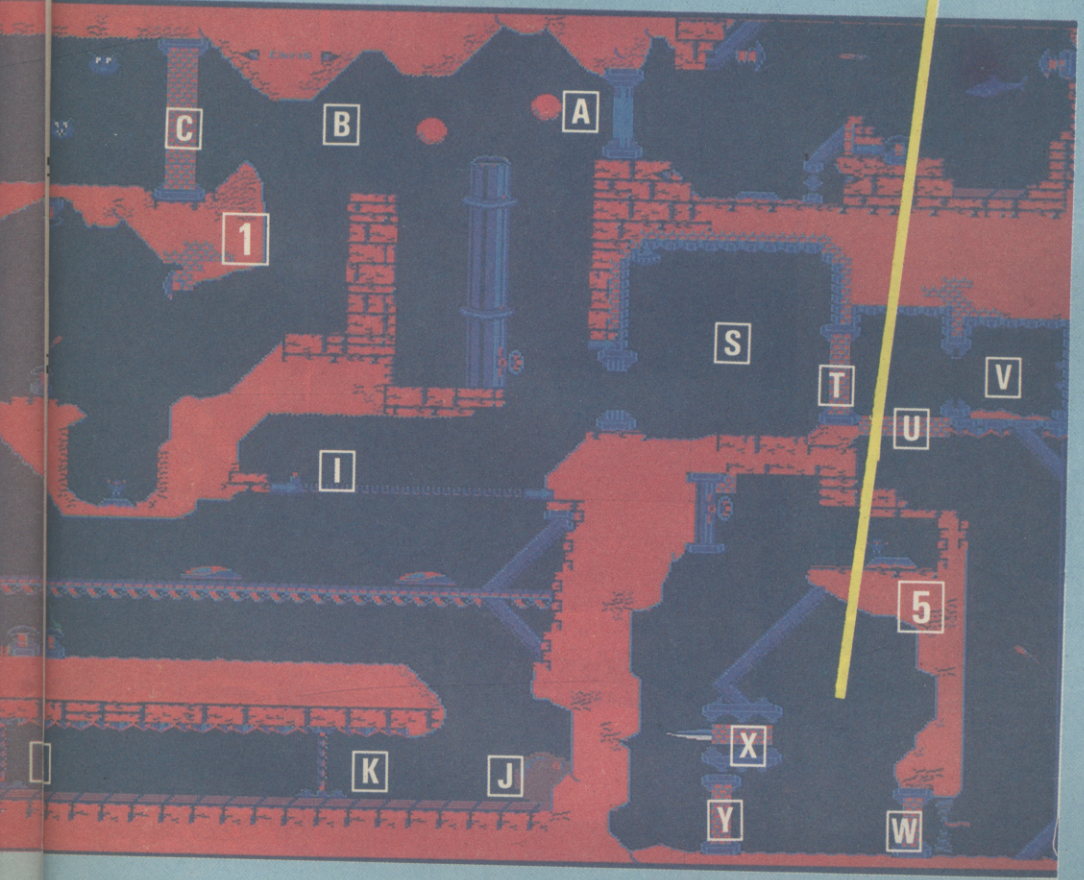
1 Sector one is the easiest challenge of the lot. You come out of the base and fly left avoiding the boulders and drop down funnel **(B)**. Rescue your man. You cannot return the way you came, remember. To get back you must shoot pillar wall **(E)** and fly out. Don't get in the lift, but follow it up. Turn right and shoot down wall **(D)**. Fly through past the Seekers and back to base. Did you remember to shoot wall **(C)** down at the start? This is your route back to base after every rescue. Whatever sector you have come through you must return via walls **(D)** and **(C)**.

"Looking back on it, the game is a bit difficul, per

RWOLF



mission, otherwise you won't be able to return past the Seekers. This is not pointed out in each description. If and when you have rescued five men, and believe me you'll still need all your skill, sectors are combined e.g. 1+2, 2+3, etc. No-one, not even Neil or anyone at Elite, has completed all five sectors combined. So get cracking! Neil Bate is working on a boxing game at the moment, more information on that over the page.



PICTURE III: Wait until the floating diamond disappears off the screen. Shoot the big spike (X) and this will hammer itself into the wall. Fly back down to wall (Y) and through. Your way is now clear.

4 Things get tough now. Take tunnel **(B)** and fly through sector one. Shoot through walls **(E)** and **(N)**. Drop down into the large caverns. Two godheads either side shoot fire bolts from their eyes. Avoid these. Shoot the two buttons at the bottom. (Refer to picture I for detailed information here.) Fly vertically up until you reach the top where a conveyor belt is dropping boulders **(Q)**. (Refer to picture II here for further important information.) You are now clear to make your rescue and return via the Seekers.

5 Fly down tunnel **(A)** and into cave **(S)**. Immobilise flying saucer and shoot down walls **(T)** and **(U)**. Do not proceed until you have shut yourself in by shooting **(V)**. This reverses the firebolts and allows you to travel vertically down. At the bottom shoot down wall **(W)** whilst avoiding the sparks. The next bit is a toughie, refer immediately to picture III. After firing in the spike, shoot away wall **(Y)** and make your way up to rescue your man. You have only just begun, now start doing the combined sectors!

2 Make your way through sector **(1)** as before. Shoot down wall **(E)** and follow lift up. Turn left and drop down. Your scientist is directly beneath you. You cannot pick him up because he is standing on water. To make him rise up shoot valve **(G)**. The door at the top right will now automatically close. To reopen and make your escape with the man, you must shoot bolt **(H)**. Remember you must make your way back via the Seekers, through walls **(D)** and **(C)**. Seekers sap your shields so avoid them as you make your way through.

3 Take funnel **(A)** and drop down to the laser line. Shoot pin **(I)** to make it disappear. Hover over the monorail and shoot a hole through. Drop through, squeezing past boulder **(J)**. You must now fly left as rapidly as possible shooting pins **(K)**, **(L)** and **(M)**. The final one will open up the trap door and the boulder you have activated will fall in. Hug that pillar on the left until it has gone. Then fly back to pin **(J)** where the boulder once was. Shoot it and your way is clear to rescue your man. Return as advised previously.

cul perhaps a bit too difficult." Neil Bate, programmer.

Win Airwolf Goodies!

If you've just read the map you might think it's all too easy now. Well, you'd be wrong and to find out you'll need the game itself! Elite, in conjunction with *Commodore User*, are giving away 30 free copies of *Airwolf*, plus 30 glossy 5'×4' Airwolf posters and 30 digital Airwolf watches! The watches alone are worth £12.00 each!

All you have to do is tell us who flies Airwolf in the TV series – the character not the actor – and provide us with a useful hint or tip on your favourite computer game. Send your entries to Hot Shots Competition, Commodore User, 30-32 Farringdon Lane, London EC1R 3AU. Entries to reach us no later than 25 June.

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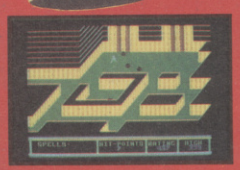
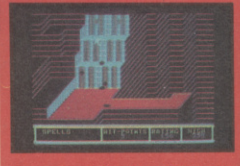


Orbs in hot pursuit in the Mines of Minos.



Trapped in the Pits of Gehenna.

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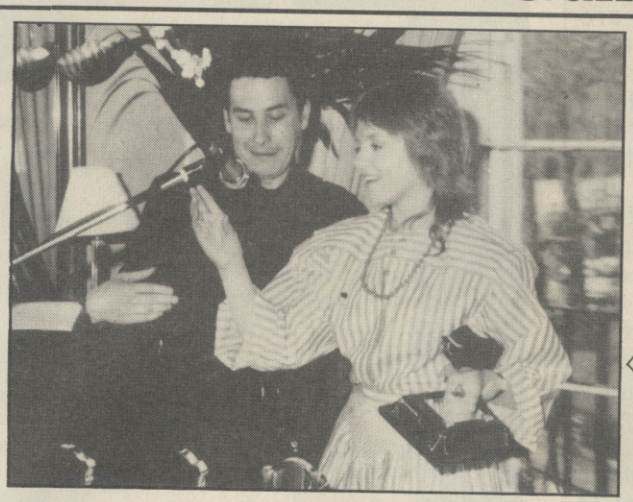
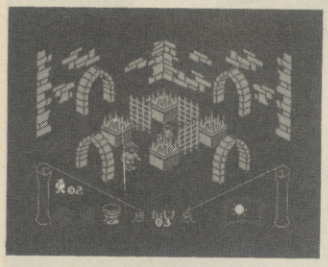


Louise Stamper of Ultimate collects the Golden Joystick Award for Game of the Year from a grinning Jools Holland. The winning game was the excellent* Knight Lore, *not yet available on the 64. The awards were sponsored by our sister magazine* Computer and Video Games. *This year* Commodore User *readers are invited to vote for their favourite games as well — so get that pen and paper out and let us know which games you think are the best. See next month's Hot Shots for your official Golden Joysticks voting form. When will* Knight Lore *be out on the 64? — see below.

CONVERSIONS



Knight Lore *for 64?*

The smash hit Spectrum games *Sabre Wulf*, and *Sabre Man* are to be converted for the 64.

The British Telecom software house, Firebird, shelled-out a reputed £10,000 each for the first two titles in the Sabre series, which forms a trilogy of games. Each one topped the game charts on its release.

A question mark hangs over the third — and best game in the series — *Knight Lore* winner of the Golden Joystick Award for best Game of the Year.

Firebird do not have the rights to *Knight Lore* and it is thought that the authors of the game — Ultimate Play the Game — may wish to bring this title out themselves. A spokesperson from Ultimate refused to comment on the Firebird deal.

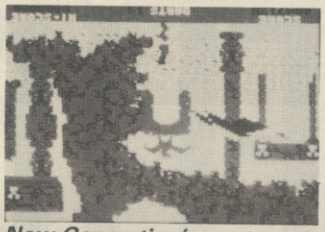
Another top Spectrum game recently announced for a 64 conversion is the highly acclaimed *Skool Daze* by Microsphere.

The Sabre games will not go on sale until the Autumn and *Skool Daze* in July.

PREVIEWS

Neil Bate's new game for Elite is Frank Bruno's Boxing, *a sports simulation for pugilists.*

It'll be released in July shortly after its eponymous hero fights for the European Heavyweight Championship. The game, claims Elite, will "allow players to experience for themselves the tensions, skills and excitement of the game". We'll be reviewing it next month and going a few rounds with their claims.



New Generation's next game for the 64 will be an arcade game called* Amazon Warrior, *an arcade-cum-adventure.

The basic idea seems to be that you have to escape from the jungle without being killed. It seems there are three totally different scenarios, the Amazon Forest, Crystal Caverns and the Ruined Temple. The screen shot comes from the last of these. It features smooth scrolling 3-D graphics and sound effects, which they claim are partly interactive. Sounds novel.

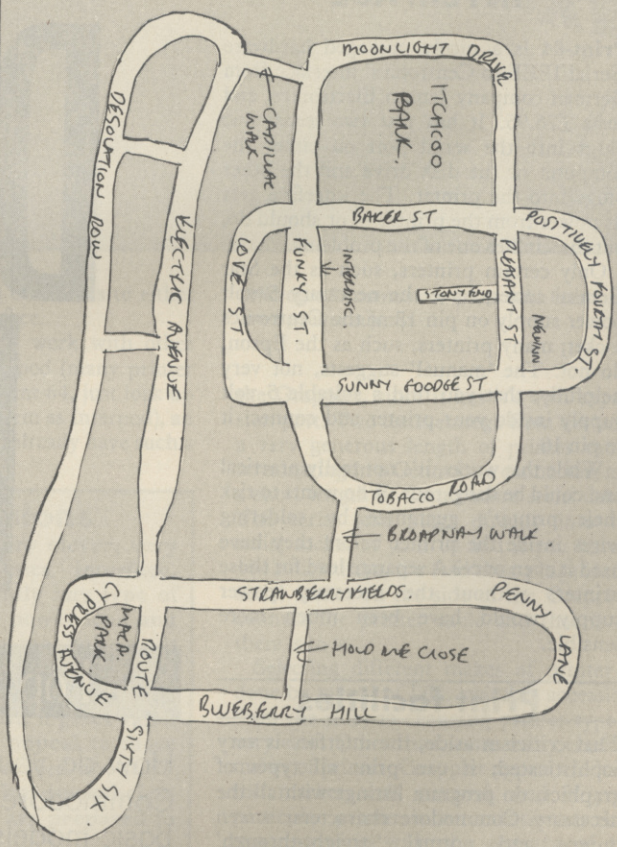
The music ought to be a bit good as well because the game is programmed by Geoff Sumner who went to the Royal Academy of Music. It'll be selling for £7.95 at the end of June. We'll be putting it to the test as soon as we get it.

GET AROUND FUNKYTOWN

Finding your way around Funkytown is no easy piece of gaming.

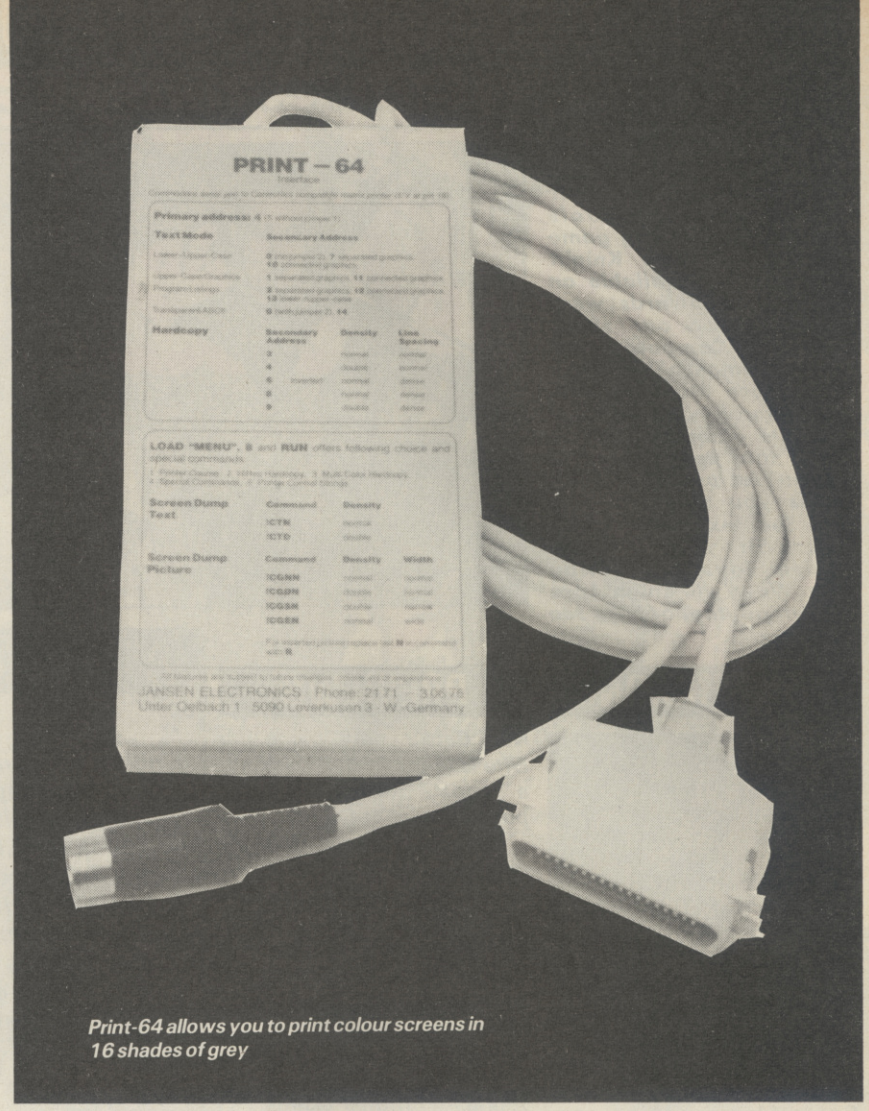
The town with the musical sounding name is the scene of Tony Gibson and Mark Harrison's latest game — Ghettoblaster.

Gibbo thought it might be a little bit difficult for you to find your way around Funkytown so he has drawn you this map with his own fair hands. The first ever map of a computer game drawn by the programmer himself! Another great scoop for Hot Shots.



Commodore printers are usually knocked for being slow, not offering enough facilities and being a little over-priced. But they can't be beaten for no-fuss printing. Just plug them in and go. Print what you like, from Commodore's unique graphic and control characters to a hi-res screen dump.

Try doing that with a non-Commodore printer and you're in trouble. That's where the all-purpose interface comes in: it will let you do just about all these things — at a price. But one word of warning before we plug them in: although these devices open up a huge range of printers, you must decide what you want the printer to do and then satisfy yourself that the interface can offer all those facilities before you buy. In short, get a dealer demonstration.



Print-64 allows you to print colour screens in 16 shades of grey

DELUXE PRINT

Top of the range printer interfaces

How do you choose a printer interface for your Commodore 64? Last month we looked at the cheap 'n basic models. This month, it's straight to the top of the range. These devices do virtually everything — but will they bust your pocket?

THE PRINT-64 INTERFACE

Print-64 is a nicely packaged hardware 'Serial IEEE to Centronics' interface from German company Jansen Electronics, and costs £76.95. It has just two leads; one plugs into the serial port on either the computer or the disk drive and the other plugs into the printer. The interface gets its power from the printer — or should do, but therein lies one of the problems.

Only certain printers, such as the Star Gemini series, have the necessary 5 volt power supply on pin 18 of the Centronics socket; many printers, such as the Epson, do not. The 'manual' suggests, not very helpfully, that you find a suitable 5 volt supply inside your printer and connect it to pin 18.

While this works, it's not really practical and could be dangerous. Who wants to risk their printer's guarantee by soldering wires inside the printer before they have used it even once? A separate lead for those printers without the necessary power supply would have been much more sensible.

Print facilities

That criticism aside, the interface is very sophisticated; it can print all types of graphics, do program listings with all the necessary Commodore characters, screen dumps and normal 'straight-through' printing for use with word-processors. All this means that the manual needs to be fairly comprehensive.

However, the 'manual' is a disk; fine if you have a disk drive, disastrous if you don't. There are a number of demonstration programs on the disk as well as the instructions, which are useful in showing what the interface can do, but why assume everyone has a disk drive? It also means that if you are running a program and want to look up a printer command, you can't.

Print colour pictures

But the most exciting feature of Print-64 are those disk routines. There are programs to download both black and white and colour graphics pictures onto the printer. Colour? Yes, because the colour graphics dump shades each colour differently by varying the dot density, and the results are quite excellent.

The machine-code routines can be located anywhere suitable in memory and run in conjunction with your own programs. They can also pick up a picture file from disk from some of the popular graphics tablets, Koala Pad for example, and print those as well. For some people, the disk routines will more than justify the cost of the interface.

Conclusions

This is an excellent interface *if* you have a printer with a 5 volt supply on pin 18 and *if* you have a disk drive, otherwise you either risk your printer warranty or cast envious glances at those neighbours with disk drives. For those people who want outstanding hi-res screen dumps there really is nothing to touch it. Get saving!

Chris Durham

THE MICROGRAFIX INTERFACE

The **Micrografix 'Graphic'** interface is imported from America and distributed in the UK by Impex Software Limited. It's a little more expensive at £89.95. The clever bits are housed in a sleek black box with generous lengths of cable.

In use, it's almost identical to Print-64 in that it plugs into the 64's serial port. But there are some important exceptions. There is a separate power lead which plugs into one of the 64's games ports for the 5 volt power supply, and there is a very comprehensive manual.

The power lead is designed for use with those printers that do not have 5 volts on pin 18. Thus some users will only need two cables connected while others will need all three. The use of the games port is quite logical since there are two of them on the 64, so you can still play most joystick games as well. By the way, the device also works with the Vic.

Fancy ways to print

Like Print-64, the Micrografix device can do all sorts of fancy things like printing Commodore graphics, in expanding the 'control' characters to meaningful strings in program listings. It can also print graphic characters as the keys needed to obtain them for example (sZ) means SHIFT Z, which gives a diamond. This is often easier to read than the graphics characters themselves, especially the 'bar' characters which can be easily confused.

Sadly, there is no hi-res screen dump facility, although the manual does include a Basic listing for dumping a text screen. This does not mean that the interface cannot be used for hi-res graphics, just that you will have to write your own 'driver' routine to do it.

Like many of the sophisticated interfaces, Micrografix can operate in a number of different modes. Unlike many others, the modes can be altered by means of the six small switches on the drive itself as well as by software, even while the interface is powered up. There is a 'reset' button which actions the change. That's pretty useful if the program you are running is unable to pass control characters to either the printer or the interface.

Micrografix will also work with other interfaces such as Interpod (many printer interfaces, including Print-64, just lock up if used on the same system as Interpod), an added advantage if you already have such a device.

Conclusions

Micrografix is a very clever, very adaptable Centronics interface, useable with virtually any type of printer. The extra power lead and the comprehensive manual give it the edge over Print-64 as far as general compatibility is concerned and, despite the cost, it gives value for money. It will appeal to those who are not too worried about hi-res screen dumps, but nevertheless want the best and are prepared to pay for it.

Chris Durham

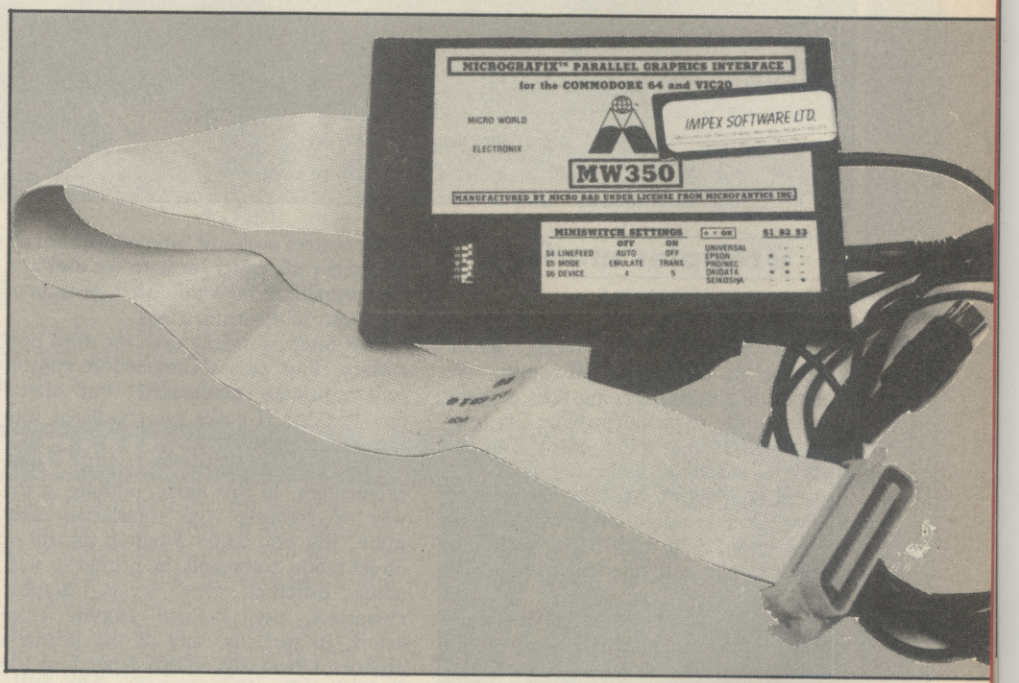
THE GRAPPLER INTERFACE

Finally, let's look at Grappler, the most expensive interface on our list, at £109. Again, it's an American device distributed in the UK by Pete and Pam Micro Distributors.

Physically, the Grappler is fairly large, about the same size as the Commodore modem. A robustly made plastic box with a clear cover houses the clever electronics, it is actually riveted together in places, indicating the strength of construction. The internal circuitry, for those of you who are interested in such things is based on a 6501 processor.

Unlike the previous two devices, power connection to the Grappler is made through the 64's expansion port. But provision has wisely been made for additional cards to be piggybacked onto the Grappler, since it has it's own expansion port. Two leads emerge from the unit; a very generous length of printer cable, terminating in a Centronics connector, and a short length of Commodore serial cable. The serial lead plugs directly into the serial socket of your 64 and if you have a 1541 disk drive, it's lead then plugs into a serial socket on the side of the Grappler, connect the printer cable and that is all there is to it.

Selecting different makes of printer is done by means of DIL switches accessible from the side, so changing printer type is very easy. Other than some really obscure makes of printer, Grappler appears to have the market well covered, and if your particular printer is not mentioned, then experimenting with the settings of the three switches should prove successful. Again, check this point, before you commit yourself to buying. ▶



Micrografix comes complete with lead for its own power supply

Grappler CD — funny name but not-so-funny price

Grappler modes

There are four modes of operation with Grappler, and the provision of high-resolution or block graphics (text), screen dumping in all modes. However, the selection of screen dumping does cost the user some 8K of memory as the Grappler ROM then comes into effect. For the benefit of machine code programers it is situated at $8000 to $8FFF, nicely out of the way. The hi-resolution screen dump is loaded into $2000 to $3F3F. Note, that this function is only operable using a disk drive.

Let's look at the four modes more closely. Emulation mode fools your 64 into thinking that the attached printer is a Commodore 1525. This allows printing of the unique Commodore graphic symbols as well as using the standard Commodore printer commands.

Program Listing mode provides on-paper translation of the screen formatting graphic characters. For example, the heart symbol (obtained by pressing SHIFT/CLR HOME), is converted on the printer listing to the much more understandable CLR, similar to the Easy Enter system used in Commodore User. It does make life easier for both the user and the magazine or book publisher, because of the clarity of the instructions.

Text mode is mainly used for word processors. This passes Commodore control codes through unchanged, but alphanumeric ASCII codes are translated into standard printer codes.

Transparent mode is really self-explanatory. In this mode, nothing in the way of character code translation takes place. You can, under program control or direct mode, command the printer to start using different type styles, graphic characters, user defined graphic characters, in fact, use any of the printer's abilities. Obviously, all this depends on the faciliities offered by your printer.

This mode does represent a powerful option and this is the mode I use with Easyscript and my Epson RX80 F/T printer. Note that all of these modes can be selected by using the DIL switches *or* (with the exception of Text mode), from the keyboard, it couldn't be easier!

The manual supplied with the Grappler was a disappointment. There was no index and the whole tone was very light. Perhaps this is the way American users like their manuals, but I'm a believer in putting as much information in a handbook as possible. It shouln't be necessary for the user to spend time learning how to cope with their printer as well as coping with the interface.

Conclusions

Well, is the Grappler worth the current price of £109.00 + VAT? My answer is reflected in the fact that this is the interface I myself have bought. Grappler is a very powerful device, easy to get started with and has proven to be trouble free in the last six months. It is American in origin, which accounts for the price, but do not let that put you off looking. My feeling is that you will be tempted to buy one after a demonstration. And then there is the problem of persuading whoever holds your pursestring.

Bill Donald

□

PRINT 64

- Jansen Electronik
  c/o Daniel Dunleavy
  234 Jasmond Dean Road
  Newcastle upon Tyne
  Tyne and Wear
  Tel: 0632 811665
- Price: £76.95
- Limited to disk owners, but excellent for hi-res screen dumps

MICROGRAFIX (MW350)

- Impex Software Ltd
  Metro House, Second Way
  Wembley, Middx
  Tel: 01-900 0999
- Price: £89.95
- Versatile, usable with virtually any Centronics printer. Expensive yet good value

GRAPPLER

- P and P Micro Distributors
  Newhall Road
  Rosendale, Lancs
  Tel: 0706 212321
- Price: £76.95
- Very expensive but very powerful and easy to use

40 GAMES TO BE WON!

Here is an opportunity not to be missed. We are offering all the games reviewed in our Screen Scene section this month as a bumper prize for one lucky winner.

That's forty games altogether worth over £350. The games are Ghetto Blaster, Grog's Revenge, Entombed, Gates of Dawn, Theatre Europe, Stringer, Super Pipeline, Moon Cresta, Rock 'N' Bolt, Bounty Bob Strikes Back, Operation Swordfish, Spooks, Big Mac, Sky Jet, Rockman, Strange Loop, Jonah Barrington Squash, Boulder Dash II, Minder, Blagger Goes to Hollywood, Spy Hunter, Brian Blood Axe, Talladega, Hi Bouncer, Roland's Race, Super Gran, Carry on Laughing, Cave Fighter, Berks II, Berks III, Tower of Evil, Dark Tower, Glider Pilot, Doodle Bug, Rip, Operation Whirlwind and Realm of Impossibility.

That's one bumper package of games. All you have to do to win is write us a short story that will incorporate all of the titles of the games listed above.

The story must begin with the following words "There I stood at the Gates of Dawn with my Ghetto Blaster by my side". Try to make your story as short and interesting as possible.

Address your entry to Commodore User, Screen Scene Competition, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. Entries should reach this office no later than 25th June.

SCREEN SCENE COMPETITION

Name.....

Address.....

.....

.....

WIN ULTIMATE GAMES!

The beautiful motif on the right is on the cover of the latest game from Ultimate Play the Game — *Entombed*.

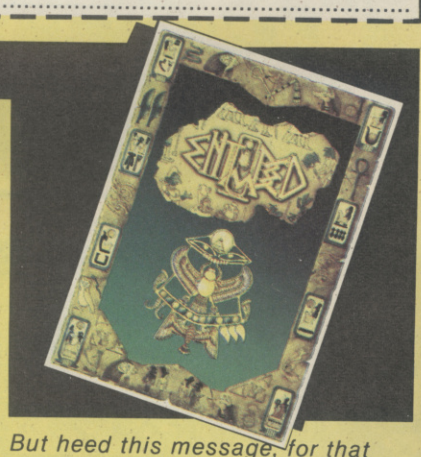
Voted a Screen Star game by our reviewer, the game is the sequel to the highly successful *Staff of Karnath*.

Both games feature the English gentleman hero — Sir Arthur Pendragon.

In *Staff of Karnath* Sir Arthur had to find the hidden pieces of a key so that he could get inside an obelisk where the staff mentioned in the title was buried.

Entombed takes Sir Arthur to Egypt in a quest for the ancient Eye of Osiris. The game is set beneath the magnificent Sphinx. Sir Arthur's only clue in his adventure is the following verse:

The Eye of Osiris guides your way
Through corridors long and dark this day
But when henceforth the creatures come
It's Set who beats the eternal drum.
Search out the Scrolls, they hold the key
For that which will then set you free
But heed this message, for that which looms.
Is ready to make thou forever Entombed.



Commodore User has ten sets of *Karnath* and *Entombed* to give away for the best tips, maps, or hints you can send us about 64 gaming.

Entries should be sent to Ultimate Competition, Commodore User, Priory Court, 30-32 Farringdon Lane, London EC1R 5AU. Entries should reach us no later than 25th June 1985. Please make sure you write your name and address — including telephone number — clearly on your entry. The Editor's decision will be final and no correspondence will be entered into. The winning entries will be published in our super new games column — Hot Shots.

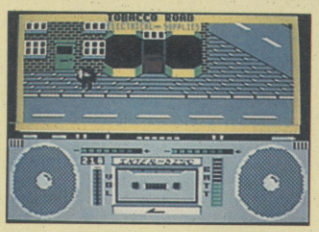
COMPETITION RESULTS

If you sent an entry into our April Breakdance competition you need wait no longer to find out whether you won that glorious shiny, red ghettoblaster. Understandably there were piles of entries, most of which answered right (c,b,c), but when it came to suggesting a song that would convert to a game many fell because they simply wrote down their current favourite record without wondering whether it would convert.

Breakdancing songs generally got the thumbs down because they've already been tried without great success. The only exception was 'White Lines' because it had a message. Other socially responsible titles were also considered like Feed the World and Ebony and Ivory. Few however, provided any originality so only those who used their imagination came close. A highwayman game from 'Stand and Deliver', and a Surfing game from 'Surfin U.S.A.' had potential as did a skipping game inspired by Malcolm Maclaren's 'Double Dutch'. The Rime of the Ancient Mariner an Iron Maiden ditty was thought over ambitious.

The eventual winner was selected from a few of you who chose Yellow Submarine. Personally I hate the record and always have done, but it does provide a number of varied scenarios. So, arise Colin Bray of Haywards Heath, West Sussex, a Sony CFSF 11 S is all yours. You'll be hearing from us soon as will the runners up, most of whose suggestions were mentioned.

Sequels form the core of this month's Screen Scene. A number of software houses have produced follow-ups to previously successful titles. We tell you whether they match up to the originals. Among those under scrutiny is another Blagger game, continuing the filching adventures of Alligata's thief. U.S. Gold figure twice with Bounty Bob Strikes back, *a sequel to* Miner 2049er, *and another cartoon caper featuring Thor,* B.C. II Grogs Revenge. *There's a* Super Pipeline II *as well. Celebrities also get their fair share this month including Supergran, Minder and Jonah Barrington. There's nearly forty games reviews in there, including a selection for the Vic and the C16. For more information and previews turn to Hot Shots.*



Ghetto Blaster
Commodore 64
Virgin Games
Price £8.95

On loading *Ghetto Blaster* you are presented with a superb street scene and foot-tapping hip-hop tune.

The game is set in Funkytown — a place made up of several streets named after some of the authors' favourite songs — all of which come from the '60s.

Ghettoblaster brings back Rankin' Rodney — the hero of *Jammin'* — in an attempt to get some music tapes successfully to the Interdisc studio. Naturally the nasties have other plans for the said tapes and try to stop you.

Some of the most vicious of these nasties are the Bandits of the Beat, Gangsters of the Groove, and the Tone Deaf Walkers. The best way to deal with these villains is to make them dance by letting fly with a funky sound from your ghettoblaster that you carry with you at all times on your shoulder. Make sure it's got batteries.

Before you can take the tapes to the studio you have to find them — and they are hidden all over Funkytown. There are shops and houses in all the streets and you search the buildings by entering the red, green, and yellow doors.

Ghetto Blaster has the best opening screen of any game I

B.C. II Grogs Revenge
Commodore 64
U.S. Gold
Price £9.95/cass

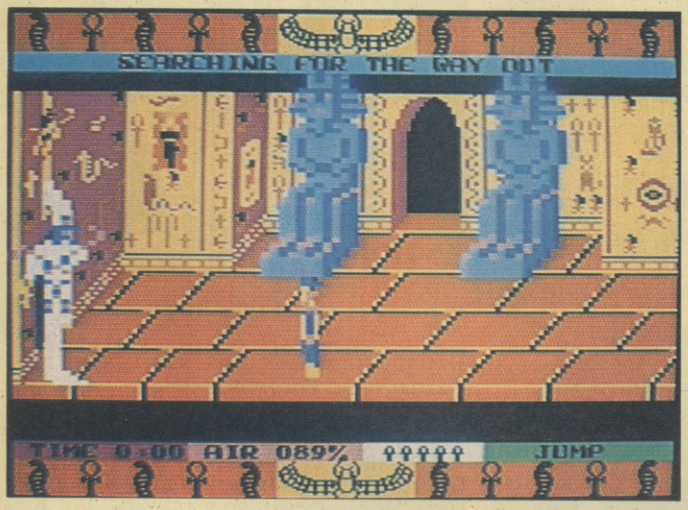
Another sequel, this time its the follow-up to *B.C.'s Quest for Tires*.

This time Thor, the hero of the game, is pedalling up and down mountains collecting clams. He simply has to ride over them on his bike as he patrols around the mountain. There are quite a few wandering around in the caves that honeycomb the various mountains, too. Once he has collected a hundred, that's a thousand points, he can go up to the toll bridge and advance onto the next stage.

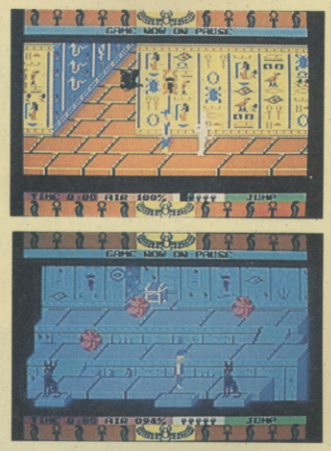
The joy about this game is the graphics which are marvellous. It's like being in a cartoon, because the whole thing is superbly animated. This is at its best when Thor runs into the many hazards that await him as he trundles around. For a start he can have steering problems and end up going over the cliff edge — whereupon his bike obeys the gravitational laws of cartoons and falls away from him before he follows it. Watch out for rocks as well because if Thor hits one he stops dead and the bike keeps going.

The high point of the game is when Thor meets the subject of the title, Grog. As he approaches you hear extreme bad news music, and should Thor ignore

SCREEN STAR



Entombed
Commodore 64
Ultimate
Price £9.95



Sir Arthur Pendragon battles the nasties in Entombed.

Another sequel, this time to Ultimate's highly rated *Staff of Karnath*. Like its predecessor it features the gentlemanly explorer Sir Arthur Pendragon, a kind of cross between an aristocratic Indiana Jones and Michael Wood of *In Search of the Trojan Wars* fame.

As before he has to search for things in this consuming maze game. This time, though, he has got himself in a bit of a mess whilst searching for the ancient Egyptian Eye of Osiris. He awakes to find himself incarcerated in an underground labyrinth of rooms and corridors with no obvious way out. To begin with you find yourself in a room where two giant statues slide together barring your way through the door every time you move towards them. Before you go anywhere you've got to get out of there. If you don't do it quickly enough you'll run out of air.

That's just the first screen. Once you get outside there are a multitude of rooms and hazards which await you. Just how many rooms there are I don't know, because Ultimate won't tell me and I haven't completed it yet.

The rooms are linked by corridors lined with hieroglyphics. Torches flicker on the walls and as you make your way along them bees, mosquitos and birds fly off the walls and plague you. The 3D high-res graphics throughout are horribly lifelike. Other hazards include a wandering mummy and a scorpion that makes such a vile scuttling noise that it makes your flesh creep. You'll need the whip to deal with these because if they touch you they sap your lives — depicted at the bottom of the screen by Ankh symbols. The whip isn't that far away and if you give them a taste of it they'll disappear, but not for long.

Your only aids are the whip (bit too Indyfied for my liking), a torch to guide you in unlit rooms, and your ability to jump. A message inscribed on the

have seen (shown in our screen shot left). The tape turns in the ghettoblaster as the music plays the, VU meter dances up and down just as in the real thing.

Ghettoblaster gives the same high standard of graphics and sound of *Bozo* and *Seaside Special* but the game-play is much more challenging.

For an exclusive map of Funkytown see our great new **Hot Shots** column. E.L

Presentation:	■■■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■

this he suddenly flies off his bike and Grog appears.

The strength and appeal of Grog's Revenge is also its weakness, because it's much more fun getting killed off than collecting clams and freewheeling round the mountain. Some vital element of achievement is missing. Don't let that put you off though because that would have made it a classic instead of just plain great. M.P

Presentation:	■■■■■
Skill level:	■■■
Interest:	■■■■
Value for money:	■■■■

cassette inlay gives you cryptic advice, the crux of which is the line "Search out the scrolls, they hold the key". So you know what you're after. Work your way through the rooms collecting the clues and that will eventually provide you with a solution.

As far as I can tell not every room contains something of use or leads somewhere useful. There are lots of red herrings and dead ends, so mapping your route is fundamental. If you don't there's a good chance you'll repeat the same mistakes every time you go back to the beginning, or just stumble blindly, running into snakes and beetles. If it helps you can pause the game whilst you write a few notes. Messages appear on the screen very briefly so it's a good idea to pause them as well.

Entombed is another classic arcade adventure that'll keep you at the computer for hours. It has all the ingredients of another hit for Ultimate, and if you'll excuse me I must go or I'll never get out of here before it's time to go home. Whipcrackaway! E.L

Presentation:	■■■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■

SCREEN STAR

Gates of Dawn
Commodore 64
Virgin Games
Price £8.95

When I first got my 64 gaming was a pretty straightforward business. You had adventure games which were text only puzzles and you had arcade games which were mostly just one or two screen shoot 'em ups.

Then several clever-dick programmers began to add graphics to certain locations in their adventures and a multi-screen element to their arcade games. Arcade games became more than simply left, right, fire. You had to go to places in the right order, collect objects, and sometimes use them.

In short — arcade games were beginning to look and play a lot like adventures. So much so that some other clever dick — this one a journalist — coined the phrase — 'arcade adventure'.

So why am I telling you all this in a review of *Gates of Dawn*? Because the game is an arcade adventure — it will doubtless be described by the reviewers as such — but when you sit down and play it you get the impression that it is the first computer game that really lives up to the name.

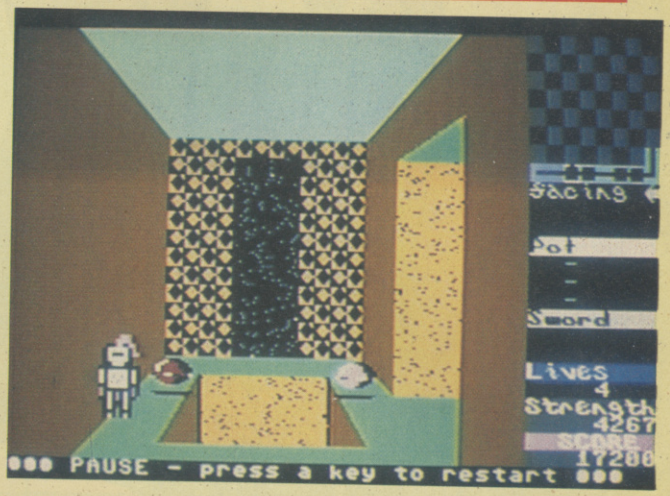
What puts *Gates of Dawn* head and shoulders above most other arcade adventures including *Staff of Karnath* is that the puzzles you have to solve really are like those you face in an adventure.

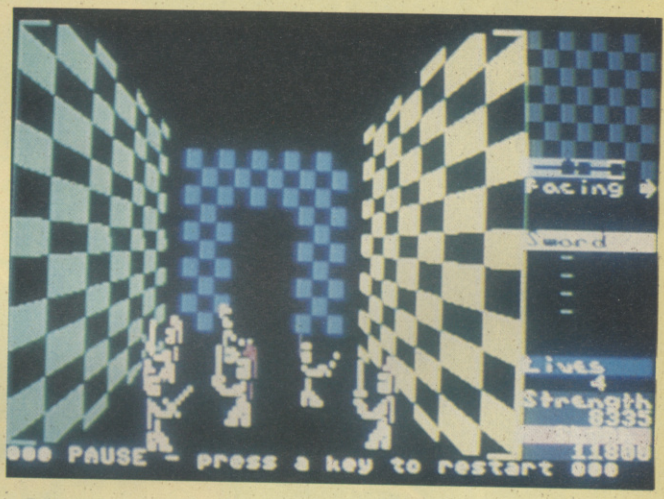
You play the part of the White Knight who must penetrate the fortress of the evil wizard. I know that doesn't sound too different but it's the way the game plays that is special.

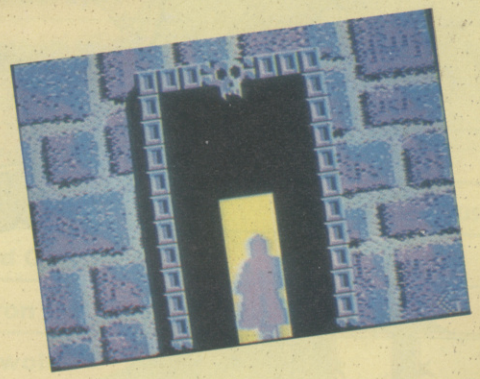
The action is set in a complex maze — 64 screens in all. Each screen contains a challenge, or clue, and exits to other rooms. As you travel, a map is created for you on a panel on the information board which is situated in the top, right-hand corner of the screen.

Games with this gamer-friendly aid always score highly with me. After all — why should you have to draw your own map?

Real adventure style puzzles — like the bottle you have to drain to make yourself reduce in size to get under one of the obstacles. All of the puzzles are logical and fun — just as they are in any good, straight adventure.







Above: The cloaked hero battles it out in Gates of Dawn.

Your information panel also shows what you are carrying, registers what you have picked up, and enables you to select items for use.

Charles Goodwin has tried to give the graphics in Gates of Dawn a dream-like quality and Virgin make much of this on the cassette inlay blurb. I don't know whether they are "dream-like" exactly — but they certainly are very good — particularly the mysterious Knight disappearing down a corridor which you get every time you enter a new room.

For my nine quid this is the best arcade adventure currently on sale for the 64. E.L

Presentation:	■■■■
Skill level:	■■■■
Interest:	■■■■■
Value for money:	■■■■

MAMA LLAMA

commodore 64

Price £7.50

llamasoft

ORIGINAL SOFTWARE DESIGN

AVAILABLE FROM W.H. SMITHS, BOOTS, WOOLWORTHS AND MOST COMPUTER RETAILERS OR FROM LLAMASOFT 49 MOUNT PLEASANT, TADLEY, HANTS (TEL. 07356 4478) SAE FOR CATALOGUE & NEWSLETTER

'THE NATURE OF THE BEAST!

THE SOFTWARE TOP 20

COMMODORE 64

	Title	Publisher
1	**Soft Aid**	Various
2	**International Basketball**	Commodore
3	**Pitstop II**	CBS/Epyx
4	**World Series Baseball**	Imagine
5	**Impossible Mission**	CBS/Epyx
6	**Airwolf**	Elite
7	**Mooncresta**	Incentive
8	**Cauldron**	Palace Software
9	**Spy Hunter**	Sega/US Gold
10	**Gremlins**	Adventure Interna.
11	**Pole Position**	Atarisoft
12	**Rocket Ball**	IJK
13	**Ghostbusters**	Activision
14	**Bruce Lee**	US Gold
15	**Breakdance**	Epyx
16	**1985 (The Day After)**	Mastertronic
17	**Raid Over Moscow**	Access/US Gold
18	**Bounty Bob Strikes Back**	US Gold
19	**Booty**	Firebird
20	**Blagger Goes to Hollywood**	Alligata

GENERAL CHART

	Title	Publisher
1	**Soft Aid**	Various
2	**World Series Baseball**	Imagine
3	**Spy Hunter**	Sega/US Gold
4	**Ghostbusters**	Activision
5	**DT's Decathlon**	Ocean
6	**Gremlins**	Adventure Interna.
7	**Bruce Lee**	UG Gold
8	**Moon Cresta**	Incentive
9	**International Basketball**	Commodore
10	**Combat Lynx**	Durrell
11	**Football Manager**	Addictive
12	**Pitstop II**	CBS
13	**Shadowfire**	Beyond
14	**Starion**	Melbourne House
15	**Raid Over Moscow**	Access/US Gold
16	**Gyron**	Firebird
17	**Airwolf**	Elite
18	**Everyone's a Wally**	Micro Gen
19	**BMX Racers**	Mastertronic
20	**Impossible Mission**	CBS

Theatre Europe
Commodore 64
PSS
Price £

If a war game to promote the cause of peace seems like a strange idea to you then you will be baffled by the latest offering from PSS — Theatre Europe.

The instruction booklet opens with this dedication "This program is dedicated to the people of the world in the hope that the game is never played for real".

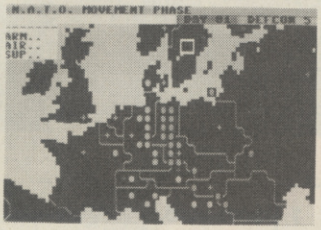
The game itself is very impressive. PSS are good at this type of strategy game. Their last offering — *Battle For Midway* is a minor classic amongst 64 war gamers.

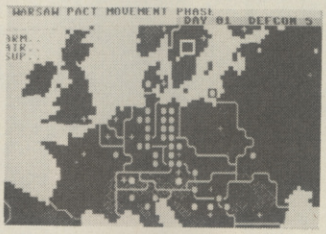
In *Theatre Europe* war breaks out after a build up of tension — a very believable scenario.

Based on the first thirty days of conflict, Theatre Europe lets you choose to command the forces of NATO or the Warsaw Pact.

If you choose to command the Warsaw Pact forces your aim is to smash NATO by taking over West Germany.

The NATO player has to stop the invasion of West Germany and prevent advances on any parts of Western Europe.





Top: Contents of video-style box. Left: NATO forces. Right: Warsaw Pact.

Theatre Europe is not a 'pure' war game — it also features elements of arcade games and quite a few graphics screens.

The NATO versus Warsaw Pact scenario described above is the basic game — though there are more advanced play options.

The Advanced Game includes such delights as "Tactical Chemical Weapons (Gas)", and special air missions that can be used to attack enemy air units.

These are the advanced options for the NATO forces. Warsaw Pact commanders can select from the Airborne Army and Amphibious Army.

The arcade element of Theatre Europe does actually involve launching missiles and guiding them towards the enemy. Select the arcade part of the game by choosing the Action Screen.

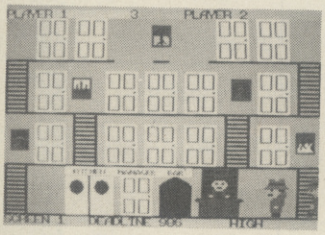
The screen select system is used as the menu for the whole game. It's all precisely described in the ten page booklet that comes with the game.

One of the criticisms of war games is that they tend to be difficult to get into. This cannot be said of Theatre Europe — a splendid effort has been made to make the game as easy to get to grips with as possible.

As well as the booklet of instructions the large video style box also contains a full colour map of the play area and the front cover of a fictional news paper called *Die Zeitung* which chillingly reports the build up of the tension.

Theatre Europe is a quality war game with painstaking attention to detail. **E.L**

Presentation:	■■■■■
Skill level:	■■■■□
Interest:	■■■■■
Value for money:	■■■■□



Stringer
Commodore 64
Addictive
Price £6.95

The object of the game, as they say, is to guide Stringer, ace reporter for the 'Daily Blurb' round the hotel in search of Polly Platinum, the blonde bombshell staying there. In true street of shame style the erstwhile hack has to snoop around all the rooms looking for her. He must also find his equipment, a camera, flash bulb, press pass and key, which someone (my guess is it's the programmer) has unhelpfully scattered around the hotel. If that wasn't enough you've got a deadline to meet, and if his editor's anything like mine he'll probably get nailed to his typewriter if he's late.

It's still all far too simple, so just to complicate matters there's an irate hotel commissionaire who pursues you up and down the levels. Yes, this is a platform and ladder style affair. Open the wrong door and you'll also let out a Mr. Angry hotel guest who'll join the hue and cry in his pyjamas. The idea is quite nice, but the gamesplay is limited. Successful completion of your mission just takes you onto another level of more of the same.

Control of Stringer is straightforward enough. It helps if you make him jump when the nasties are a bit close, or leap across a gap which they can't follow you over. Watch your footing though, or you'll end up falling off a ladder. Unfortunately he can't go into the bar, which is rather an omission for a hack.

Stringer isn't that special a game, but what it does, it does quite well. It's not bad, just a bit mediocre. **M.P**

Presentation:	■■■□□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■■□

Super Pipeline II
Commodore 64
Taskset
Price £9.95/disk
£11.95/cass

The type of game that gets dug out of the cupboard time and again, even after the novelty has worn off, is the one which is playable right from the off even by us MENSA rejects. The scenario has to be absolutely transparent without the aid of eight pages of ifs, buts, hows and wherfores.

Last summer *Super Pipeline* opened up many a wallet, shot Taskset to prominence and caused umpteen joysticks to waggle as we tried to fill the barrels. As the foreman we had to intercept saboteurs, escort a plumber to blockages in the pipeline and protect him by frazzling Venutian spiders and lobsters, thereby keeping the water gushing. Screens rolled by to the accompaniment of a fair old soundtrack.

This all proved so popular that Taskset have gone for a second bite of the cherry. The theme is the same but there's more to see and deal with. The game-play has been polished . . . there's leaks instead of blockages and the barrels move along a conveyor belt; there's also umpteen fresh baddies, cartoon interludes and your SID chip receives a pounding again. Tactics now come into play but the game still retains it's simple appeal.

An improvement on a justifiably popular fun-game but you need to be keen to pay out £10 to replace your copy of mark I.

The departure of top-notch designers Tony Gibson and Mark Harrison was a blow to Taskset. But *Super Pipeline II* is proof that there is plenty of programming talent left in Bridlington. **L.S**

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■■□
Value for money:	■■■■□

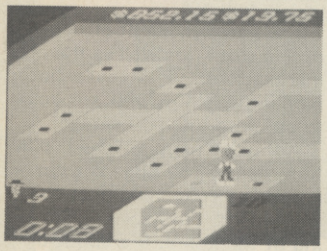
Peace Women
Commodore 64
Knightsoft
Price £

This game comes with a cover of a stock stereotype peace woman with short hair and dungarees. It might be offensive if it wasn't for the fact that she was sitting in a C5 with a gun mounted on the front, being pursued by a squaddy on a motorbike. Instead it's just faintly pathetic.

Further investigation is pointless, because the game is pure drivel. It could have been funny without trivialising and cheapening the topic. Like the worst sitcoms it starts with a complete stereotype and relies on that alone for its humour. All that happens is that your character (you are a peace-woman, like it or not) moves along a scrolling background of trees and buildings that never changes. A signpost for Greenham Common moves past every so often, but I never reached the base. After three screens I was bored to tears. Nasties encountered are said squaddies on bikes, something on pogo stick and flying ducks. It's rather difficult to be any less vague because the graphics are lousy.

Occasionally you pass a very old Arthur Scargill joke written up on the background and a swipe at Jeff Minter saying 'Llamas are loathsome'. I'm no Minter fan, but such a cheap comment is cringingly embarrassingly when the graphic style owes much to him. Though to say that is an inult to Jeff because the quality is so poor as to be like watching the telly with the aerial out. What else is there to say? You get three lives, differing skill levels and I really can't be bothered to go on because you don't want to buy this dross. **M.P**

Presentation:	■□□□□
Skill level:	■■□□□
Interest:	■□□□□
Value for money:	■□□□□



Rock 'n Bolt
Commodore 64
Activision
Price £10.99/cass
£19.99/disk

Ignore the lousy cover on the front of this game which makes it look like a turgid business game, *Rock 'n Bolt* deserves better.

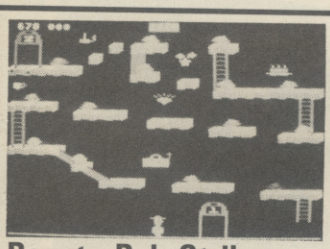
The basic idea is to make your man bolt down moving girders and get him back to his platform before the time runs out. In most rooms you must follow a blueprint exactly to complete the job. Many rooms stretch across more than one screen. Some rooms have no blueprint so you must just bolt the girders down and make it back to the lift as fast as possible (you get less time on these.)

Should you bolt down a girder incorrectly, your rivet turns red. Black bolts mean you've got it right. Flashing green bolts earn you an extra man, which you may well need if you run out of time. Flashing gold bolts earn you bonus money, because all the time you're bolting and moving up levels, you're making money.

The rock element of the title comes in with the soundtrack which accompanies your efforts. There are several different foot-tapping tunes none of which have made me turn down the volume yet. They only serve to increase the feel of working against time.

Talking of time you get three options, the first of which is not really worth bothering about because the game relies very heavily on the race against the clock for its excitement. The graphics aren't particularly great but that doesn't matter because *Rock 'n Bolt* is pretty rivetting stuff, although it's priced rather too high. **M.P**

Presentation:	■■■□□
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■□□



Bounty Bob Strikes Back
Commodore 64
U.S. Gold
Price £9.95/cass
£14.95/disk

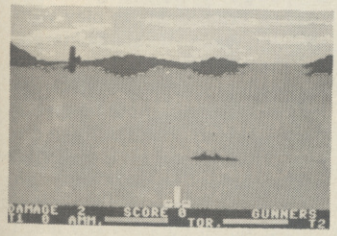
Bounty Bob continues his platform jumping activities in this sequel to Miner 2049er, which was the first game of its type. The follow-up has twenty-five levels through which you have to guide Bob through the mine avoiding the mutant organisms that have overrun it.

Bob must work his way through each level by claiming each section of the framework in the cavern. He does this by walking over it, turning solid. If Bob falls, even onto another platform just beneath him, he's a goner. Touching the mutants does him no good either, unless he's killed one previously or collected a 'treat'.

On his journey ol' Bounty comes across a number of items, some are relics left behind by Nuclear Ned, like the Mobile Suction Unit or the Pulverizers, most of which present a constant threat to Bob. Some like the elevators and hoists he must make use of if he is ever to defeat the plans of Yukon Yohan. Just to make things harder you're up against he clock.

If you're any good at it you get to put your score up. Now, you get to do that in any game, but here the nice touch is that you are in a factory and to write your name you must shove the letters off a ledge with a bulldozer. Pigeons then come and collect them and pin them on board. Graphics and sound are not that special, but if you like platform games this has to be for you. If you find the low level a piece of cake then there's three more including the *C'mon* which starts you off with less time. Bounty Bob is good, solid hopping stuff but unless you're a platform fan you'd better not apply. **M.P**

Presentation:	■■■□□
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■□□



Operation Swordfish
Commodore 64
British Software
Price £9.95

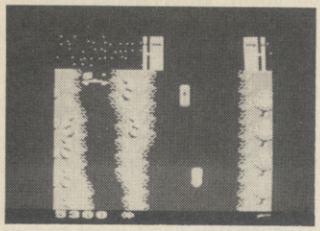
It's 1942 and the Allies have sent an invasion fleet towards the Mediterranean coast. Its your job to stop this. Yes, you're not even fighting for your own country. But you are at least a U-Boat commander.

You have two methods of engaging Tommy in battle. You can either shoot down the Fairey Swordfish, or fire torpedoes at the convoy as it sails past. If this sounds at all familiar, one look at the screen with your gun will confirm that this is Beachhead revisited. This would not be so bad if the graphics and gamesplay matched up to the original, but they don't. You seem to be firing blocks at the approaching planes, and the explosions when you shoot them down aren't much reward.

Your main considerations are switching in between the two modes of attack. When the planes are flying you need to be on the surface. When the convoy starts depthcharging you need to be underneath firing torpedoes. Your one means of defence is a hatch which acts like a shield for some strange reason. If you can stay behind that and pop out occasionally you'll last a lot longer. You'll need to becaue this game doesn't allow much room for error. You do not have a whole pack of submarines, so the result is that it all tends to be over pretty quickly, which is fine from a patriotic viewpoint, but not much fun if you're trying to have a good game.

If some novelty could have been added, I might have felt better disposed towards it, but this is just a hybrid of *Beachhead* and *Sea Wolf* and not worth the high price either. **M.P**

Presentation:	■■■□□
Skill level:	■■■■□
Interest:	■■□□□
Value for money:	■■■□□



Spy Hunter
Commodore 64
US Gold
Price £9.95/cass
£12.95/disk

The action in this arcade conversion takes place on the open road with you at the wheels of your souped-up special agent car. Nasties come in the shape of enemy agents with real mean-sounding names like the Road Lord, Switch Blade, The Enforcer, the Mad Bomber, Barrell Dumper, and Doctor Torpedo.

Your turbo car is armed only with machine guns at first. Extra weapons have to be earned by successfully driving through one whole sector. If you manage this the weapons van will appear. Get behind this then drive up into it — via a ramp that comes down. Your car will now be equipped with a new weapon.

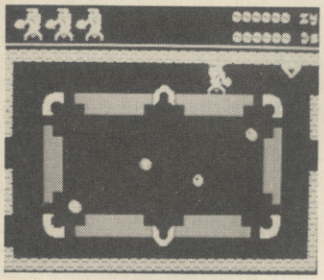
As you travel you will need various extra weapons — like the oil slick, smokescreen and the missiles for attacking the mad copter bombers.

The game scrolls vertically and has some quite attractive, ever-changing terrain. Part of the skill required is in keeping your car on the road — avoiding the broken bridges, forks in the road, or being bumped off by the enemy agents.

The best part of the game is the water section. You come to an old boat-house on the road. Enter this and your car is transformed into a speedboat. But don't expect a nice quiet spin around the bay.

To play this game with a joystick you will need to borrow an extra stick from a friend if you don't have two — and then connect them together following the instructions enclosed. It's a bit of a drawback but luckily the game can also be played with the keyboard and is actually better this way anyhow. An excellent shoot 'em up just the same. **E.L**

Presentation:	■■■□□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■□□□



Brian Blood Axe
Commodore 64
The Edge
Price £7.95/disk

In the footsteps of programmers' jargon like 'landscaping' and 'movisoff', The Edge now offers 'primary imbalance'. But you don't need to know what primary imbalance is to grasp the essentials of this game or to enjoy playing it.

What we have here is a *Jet Set Willy* style platform game. The Edge are obviously not afraid of facing up to this similarity.

The three Brians that march back and forth in the bottom right-hand corner of the screen, awaiting their turn, is like an open admission that the game owes a debt to the Software Projects game.

The Edge obviously believe that it's a Willy type game but better and I must say I am inclined to agree.

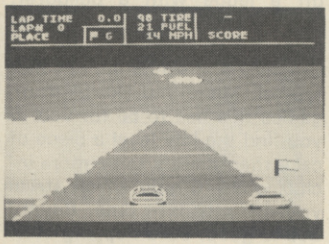
A whole hundred scenes have to be hopped through in Brian Blood Axe. But that is not all — many of the screens contain puzzles that need to be solved. Lateral thinking is required here as well as a Peter Pan-like precision in hopping from ledge to ledge.

One of the early puzzles is a snooker table with colourful balls crashing around on the green table. The secret here is to pick up and use the triangle. But just how you use the triangle is for you to find out.

The game is full of challenges of this sort — as well as the normal platform game challenge of working out how you are going to get onto the next screen.

An extremely polished platform game. The Edge set out to out Willy Willy, and they have succeeded. That said — I'm tiring of the genre. It's about time Matthew Smith came up with something new. **E.L**

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■■□



Richard Petty's Taladega
Commodore 64
Audiogenic
Price £7.95/cass
£19.99/disk

This game has its similarities to *Pole Position*. You have to do a qualifying lap against the clock, and if you make it, your time determines your grid position. There are three track options, the last of which is a random course. All you've got to do then is fight your way to the front, and I mean fight, because this game allows for plenty of bumping and jostling with the other eighteen motors. Don't push too hard though, or it's curtains for you.

It's the extra features that make this game worth playing, because whilst control isn't too difficult, there are a number of strategic elements that are original. In particular, you can slipstream behind other vehicles to save petrol. Whilst this is happening your car turns a lighter shade of blue and you hear a rushing wind sound. Like Pitstop, you also get to make, yes, pitstops for more fuel, tyre changes and repairs. It's best to do this when you get a yellow flag — that way you don't lose any places. You also get told who's behind you whilst you're racing which is important because each driver is programmed to drive differently.

On the minus side you get a very slow start in this game. You're often left standing on the grid whilst the others whip past you. Meanwhile your speedo tells you you're doing ninety. The game is also too long — thirty laps take quite a while, probably about half-an-hour. And another thing — who the hell is Richard Petty when he is at home?

Taladega is nevertheless not a bad addition to racing games, and is certainly different from the grand prix style approach. **M.P**

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■□□
Value for money:	■■■■□

Hi Bouncer
Mirrosoft
Commodore 64
Price £7.95

Hi Bouncer is one of Mirrorsoft's line of arcade games featuring none other than the Mr. Men. Doesn't sound very promising, does it? And it's not . . . .

You get four screens for your money in which you have to help out various Mr. Men in distress. Mr. Tall can't reach down to pick up his scarf, Mr. Lazy can't be bothered to finish his house, Mr. Bump is too bruised to pick any more fruit off the trees, and finally Mr. Snow is melting because of lack of shade. In each case Mr. Bounce has to come cartwheeling to the rescue. If he touches anything he goes off like a balloon with the air rushing out of it.

The pack claims that 'it's easy — for the first five seconds', but I'd contest that and say it's a lot easier than that. The practice version has seven levels of difficulty, the lowest of which is so slow, that it's like watching paint dry. The arcade option is fast, but once you've mastered what's required tactically — and you don't exactly need a doctorate in nuclear physics to suss it — the game loses what little appeal it ever had. The graphics are simple — like kindergarten pictures — and the sound poor, with a lousy lalala tune.

Basically it's too childish for anything but very young children to play. Who wants to play with Mr. Men when you can obliterate the Kremlin? And if it is intended for young children, which is doubtful, because nothing on the pack suggests that it is, then it's still a waste of time because such games should have an educational angle to them. The only thing Hi Bouncer will teach you is just how wet the Mr. Men are. **M.P**

Presentation:	■■□□□
Skill level:	■■□□□
Interest:	■□□□□
Value for money:	■■□□□

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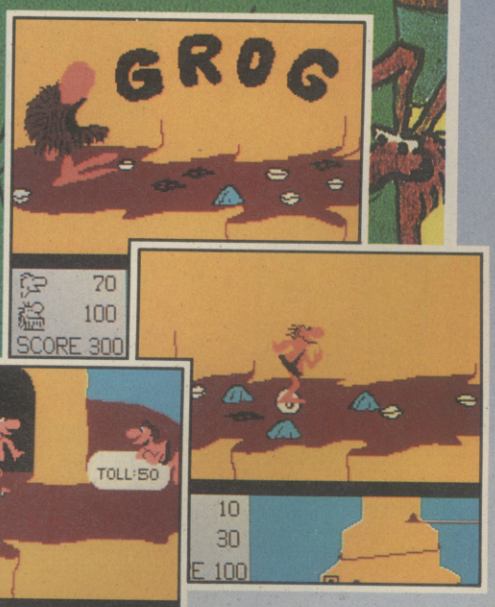

Thor is out to find the Meaning of Life but to get there he must have clams. Oh, but it's a hard journey. Climb steep hills. Dodge rocks and potholes. Speed through treacherous caves. Avoid Tiredactyls and the Mighty Grog!
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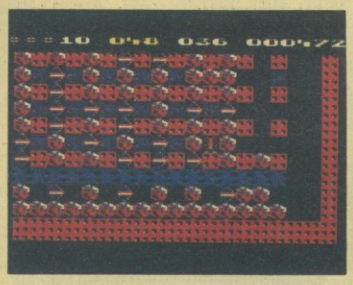
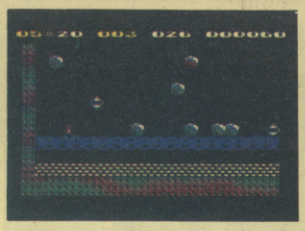
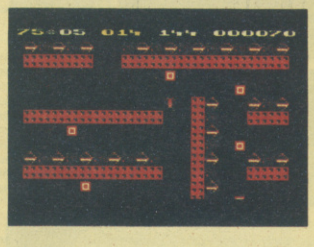






Boulder Dash I & II
Commodore 64
Monolith
Price £9.95

Remember Rockford — the cute star of the smash hit game *Boulder Dash* well he's back in *Boulder Dash II* and Commodore User has an exclusive review.

Biggest news about this sequel is that the original game is given away free on the flip side of the cassette. Well — maybe free is a bit too strong — after all the £9.95 asking price is a couple of quid dearer than most games.

But then a fiver-a-piece for Boulderdash I and II is still value for money when you consider that most good 64 games cost about £7.00 anyway.

For non BD'ers ther aim of the game is simple. You have to get Rockford safely through the scrolling play area — a curious chequered board scattered with boulders, collecting diamonds as you go.

But if that sounds easy just you give it a try. There are sixteen levels to get through and five difficulty options.

Working out how to get those jewels without an avalanche of boulders landing on your head is the fun part of *Boulder Dash*. Decisions need to be made on the move — often in a split second.

Graphics are not one of BD's strong points — in either version. It is the mechanics of the game and the playability that puts it in the super-game class.

Other hazards appear like flashing squares that pursue you through the rooms. The boulders as well as crushing you can also be used to crush the chasers.

When all the diamonds have been collected on one screen a secret door opens up — through which you can travel to the next screen.

This is the scenario of BD I. At first glance version number II doesn't seem very different. The objective is the same though much harder to achieve. The main difference is the lay out of the scrolling play levels.

You begin with a seemingly unsolvable trap. You have to make a quick dash past four flashing chaser squares to get to the diamonds..

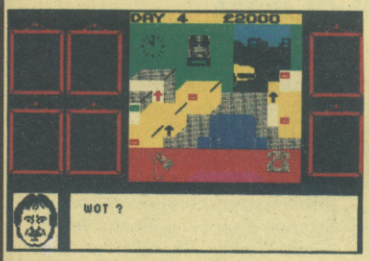
It takes a lot of practice to time your run properly to get past the chasers. Now the real fun begins — as you scramble for those diamonds making the boulders fall on your opponents.

The key to success in Boulder Dash I and II is to study the screen very carefully — planning you route before you make your dash.

Another improvement version II has over the original is that you get a full size picture of Rockford on the title screen. The cutey stands there tapping his foot just as he does when he stops to think in the game itself.

Monolith are to continue the policy of giving away version one with the launch of the follow-up in another of their forthcoming launches — the sequel to Spy Versus Spy. Good news for gamers this — how about following suit Activision, Melbourne House, US Gold, Ultimate, Ocean, Llamasoft et al. Monolith is a new arcade games label to be launched by Beyond Software. E.L

Presentation:	■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■■



Minder
Commodore 64
Dk'tronics
Price £9.95/cass

This game manages — just about — to capture some of the atmosphere of the TV programme.

All the familiar names and places are featured in the game. Inspector Chisholm, 'Er indoors, the Winchester Club, and the Lock-Up — they're all here — everything has been thought of.

The aim of the game is not surprisingly to make as much money as possible by becoming Arthur Daley for a fortnight.

You begin the game with a bank balance of £20,000 from which money is deducted every time you buy something — or pay Terry to do a job.

Minder is really just a trading game — though the graphics' attention to detail allow you to lose yourself in it — despite its simplicity.

When someone talks to Arthur — either at the Winchester or in Terry's flat — the text appears in a panel at the bottom of the screen — as the lips of the person move. This was a nice touch.

When the Winchester is full of people you choose the face you want to talk to by pressing the number on the keyboard corresponding to the one beside the required person.

When Arthur decides he wants to leave the Winchester and visit his lock-up, Terry's flat, or go home — a car scene appears with our hero at the wheel of his Jag with the Minder theme tune playing.

As I have said — a fairly simple trading game. If you are a Minder fan then you will be amused by this game. If you had never heard of Arthur Daley and Terry McCann you probably wouldn't be quite as impressed. Review based on Spectrum version. E.L

Presentation:	■■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■■

Blagger Goes To Hollywood
Commodore 64
Alligata
Price £9.95/cass

Blagger, that rotten little tea leaf from Alligata, is back again with another follow-up. This time he's nipped over to Hollywood to nick the new Steven Spielbaum megadrama.

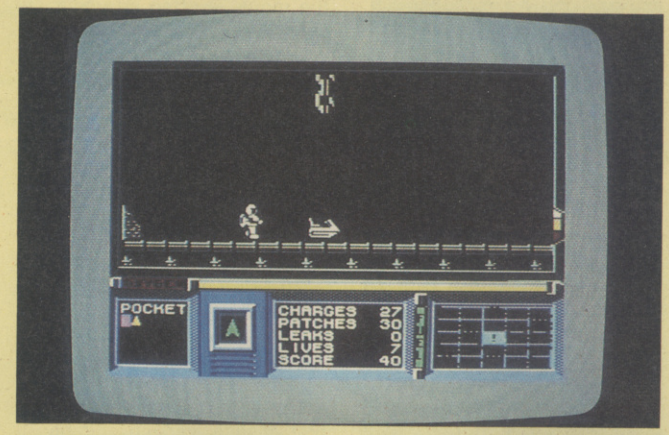
Whereas *Blagger* and *Son of Blagger* were both platform games, this is more along maze lines. Our intrepid thief must work his way through twelve studio sets collecting articles which will eventually enable him to get into Spielbaum's office and blag the film. Each article is a prop and is related to the twelve characters you run into. Launching the prop at the character will knock it out. However, specific props are needed for each character. You won't get very far throwing money at Jaws, for example. On your filching way through the studio you'll come up against the likes of Superman, Batman, Kojak, Robin Hood, James Bond, and the Hulk to name but half of them.

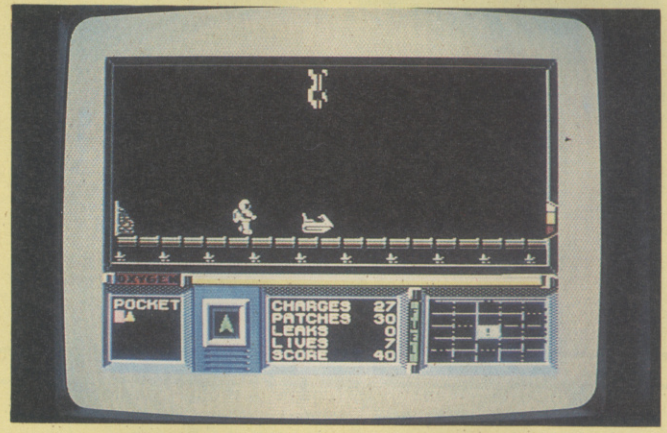
Other obstacles are power fields which you cannot cross and roving Tardis's which pop up frequently and can be eradicated with any prop. Watch out for those walls though because they're like fly paper! Typical objects include a silver bullet, a POW sign, a gun and a valium tablet, though what that's for I can't imagine. Whilst the graphics aren't that great, you always know who you're up against because of the great music which accompanies each character.

This is probably the best Blagger so far, it marks a departure of style which is good. Go out and get yourself a copy, but don't follow Blagger's example, buy one instead! M.P

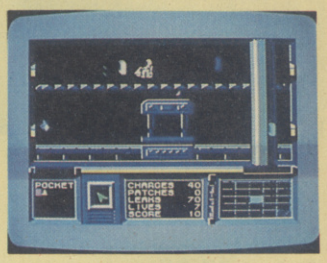
Presentation:	■■■■
Skill level:	■■■
Interest:	■■■
Value for money:	■■■

SCREEN STAR





Above: Find your jet bike and start exploring the factory ship.



Strange Loop
Commodore 64
Virgin Games
Price £7.95

Here is a Spectrum cast-off that 64 owners need not be embarrassed to tell their friends about. Even the manufacturers — Virgin Games — reckon that the 64 version of *Strange Loop* knocks spots off the original.

The original game was written by Charles Goodwin, author of the excellent *Gates of Dawn*. Now I had better say straight away that the new version is by one Simon Birrell. He asked me to make sure I credited him for the 64 version — so there you are Simon, a promise kept.

Strange Loop is set aboard a space ship floating helplessly in outer space. Considerable damage has been inflicted by meteors and most of the ship's vital equipment is not functioning. It's you to the rescue as you search the enormous, 250 room space factory.

Mapping is essential if you are not to get hopelessly lost. You only have a limited oxygen supply so time is paramount in *Strange Loop*.

Your space man is difficult to control — tending to bounce off walls and pull against your desire to have him walk in a certain direction.

After a couple of hours play I discovered the reason for this. Our hero was never intended to explore this giant complex on foot. One of the rooms contains a jet cycle. Once you get hold of this your control over our hero improves a million percent. Actually, it's not just a case of hopping on the jet cycle and away you go. As with all progress in this game there is a puzzle to be solved.

The thrill I got when I won my jet cycle can't be described so I am not going to spoil it for you by telling you how it's done.

As the gravity control has been broken aboard ship the whole place is scattered with floating debris. Points can be earned by blasting this as you go.

Blasting is not really what *Strange Loop* is about though — so blasting objects, although it can get you into the hall of fame pretty easily, doesn't really mean anything.

To win in this game you've got to use your brain as well as your joystick. The puzzles are all fairly logical — I say fairly because there are a couple of real stinkers in there, so don't say I didn't warn you.

As you travel you will find objects that you can carry with you in your pockets. Pressing the S and J keys enables you to select an item and use it in an attempt to solve one of the puzzles.

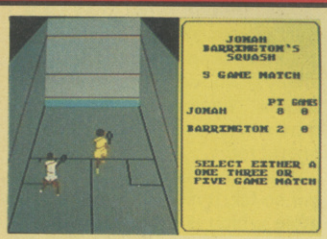
Some of the logical puzzles I talked about are things like a rusting robot. Well it's pretty obvious that a rusting robot can be put to rights with an oil can. But there is some very sophisticated machinery on board including computers, a laundromat, and de-compression units — and how do you deal with an unhappy robot?

As you travel there are messages on the walls of some of the rooms. I am not sure how useful these are but I do know one thing: there are plenty of red herrings about. Real ones. I picked up one of these and put it in my pocket. When I went to use it the message indicator told me it was a red herring. Laugh? I nearly smashed my 64 to smithereens.

Strange Loop graphics are superb. The machinery is colourful — with lots of metallic moving parts. Sound effects complement this — a dull thud as a huge press closed, or a lunatic screech where a room is completely out of control.

To tell you how good I think Strange Loop is I think I should explain that I am lucky enough to play lots of computer games at work. Very few games, therefore, get brought home to play at night or at the weekend. So far they include *Impossible Mission*, *Ghostbusters*, and *Dam Busters*. *Strange Loop* will be the fourth. A real Screen Star if ever I saw one. **E.L**

Presentation:	■■■■■
Skill level:	■■■■■
Interest:	■■■■■
Value for money:	■■■■■



Jonah Barrington's Squash
Commodore 64
New Generation
Price £7.95/cass

Naming a squash simulation game after Jonah Barrington is like putting forward Bobby Charlton as the ultimate in soccer prowess — he was a Bobby dazzler, but he's no longer putting in the winners. Anyway, JB is the only squash player most people have heard of.

Never mind that, since this game has little to do with Jonah himself, except that his autograph appears on the insert along with simple instructions and a set of playing rules — laid down by the International Squash Federation, no less.

Playing the game follows the format adopted for various tennis simulations in that you hit the fire-button to play a stroke. You can play either the computer or use two joysticks to battle it out with a real opponent. Levels of difficulty correspond to the four 'dot colours' on squash balls.

Squash is too quick and too energetic to be simulated successfully on-screen. Given that obvious drawback, the shots really do play realistically: getting a tricky shot back off the back wall is just as hard as the real thing — maybe not for Jonah. Still, it's more a case of novelty than lasting value.

Only the sound pulls this game out of mediocrity. The umpire's voice, calling out the score and 'hand in', 'hand out' etc is very realistic. In fact it's none other than our Jonah's digitised voice in glorious 'Reprosound' as the cover tells you. New Generation claim that JB uses the game himself for coaching. One disappointment was the sound of the ball — since when did squash sound like Breakout? **B.B**

Presentation:	■■■
Skill level:	■■■■
Interest:	■■
Value for money:	■■

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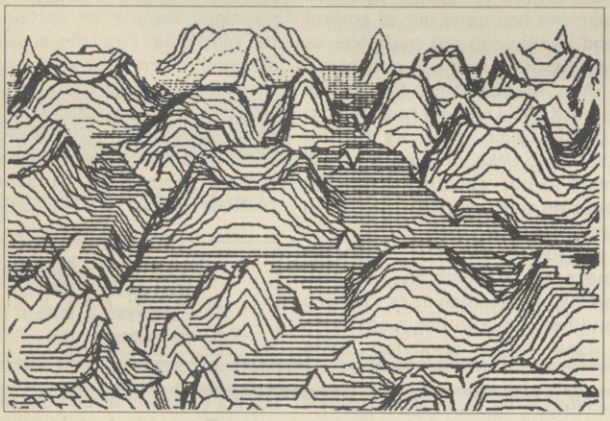

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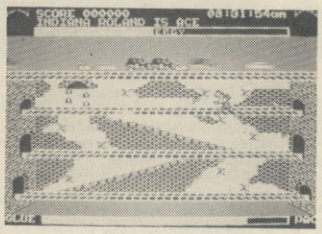


Roland's Rat Race
Commodore 64
Ocean
Price £7.90/cass

Roland's Rat Race is the second game from Ocean starring TV AM's rodent superstar.

This time Roland is caught up in a frantic race in the sewers below North London as he struggles to find his way to the TV AM studios in time for his broadcast.

Roland's furry friends Errol and Kevin have been kidnapped and are being held captive by the nasties. It is essential that you secure their freedom before dashing off to the studios.

As you might imagine there are several nasties down in those sewers and they all have one thing in common — they can't stand Roland Rat superstar.

Roland's only defence against the Wellington boots, slimy slugs, and other nasties is his tube of stic-o-matic glue which he can squirt at his enemies to temporarily immobilise them.

The key to cracking Roland's Rat Race is to work out a map of the huge underground complex. One of the sewers is blocked by a giant door.

To get past this you will need to find the various pieces of the door hidden throughout the sewer — and take them one by one to the door.

Once the door has been assembled you can then go searching for the key.

If this sounds a little too easy, you should also know that you have a limited energy supply and you can only carry one item at a time. Energy can be boosted by eating the apples and burgers that appear randomly.

Graphics and sound are excellent. In fact the whole game is up to the high standards we have come to expect from Ocean programmers. A fun arcade adventure. E.L

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■□□

Super Gran
Commodore 64
Tynesoft
Price £9.95/cass

This game is a good illustration of the pitfalls of producing and selling computer games around TV programmes and films.

Take the case of Super Gran — for example. We all know that it's a great programme, right? Quite a coup then for Tynesoft to get the rights to produce a game based on the programme. According to the cassette inlay of this it is "a truly amazing game with superb graphics on 8 action packed screens". Now to call the graphics in this regrettable piece of software "superb" must be at best an exaggeration of enormous proportions and at worse a downright lie.

What you actually get are the most chunky graphics imaginable — all the objects are one colour. There is no use of shading — in fact they are so basic in some of the screens that they look as if they were drawn in crayon by a six year old. And "8 screens" — well, how mega-amazing!

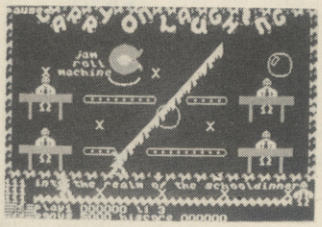
Back to the cassette inlay card. "Professor Black has asked Super Gran to help him take his Skimmer to the Science Exhibition". More disappointment here. The famous skimmer looks more like a waffle on wheels. Just a yellow rectangle scrolling between two blue areas — presumably this is supposed to be a road.

Scunner Campbell is also supposed to appear in this scene — though I couldn't spot anything that looked remotely like him.

Adventure International are going to do an adventure game based on Super Gran. I hope they make a better job of it than Tynesoft.

Steer clear of this rubbish. E.L

Presentation:	■□□□□
Skill level:	■□□□□
Interest:	■□□□□
Value for money:	□□□□□



Carry On Laughing
Commodore 64
Live Wire
Price £6.95

I could hardly contain myself as I waited for this game to load. I had visions of all my old favourites starring in this game. There would be saucy Barbara Windsor, hilarious Sid James, Hatty Jakes and all the team.

But alas — none of this. The game loaded to reveal a simple platform game with fairly average graphics.

Set inside a crazy school "St Hexadecimals, an infamous school for demented programmers".

You play the part of the hard-pressed caretaker — Mr Livewire — who has to clean up the classrooms after the unruly mob of student programmers have done their worse to wreck them.

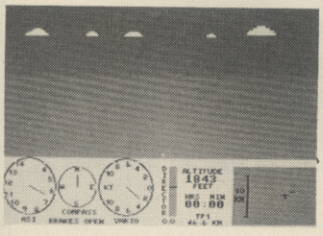
The action begins in the Dining Hall where a giant jam roll machine has gone out of control and is spewing out puddings as fast as the pupils can eat them.

Above each of the four tables is an X. Mr Livewire has to jump up and touch these Xs to turn them into ticks. To do this he will need to hop aboard the floating bubbles that will take him up to the top levels.

Should our brave caretaker make contact with any jam rolls on his quest then it is curtains and he'll have to begin again.

One really annoying thing about Carry On Laughing is that every time you are killed you have to wait several seconds while the game runs through a pointless routine of setting up the play area. First the screen is dragged horizontally into view — then a spray can appears and paints in the colours. It just becomes irritating after a while. I can't really recommend this, it's no more than an average platform game. E.L

Presentation:	■■□□□
Skill level:	■■□□□
Interest:	■■□□□
Value for money:	■■□□□



Glider Pilot
Commodore 64
CRL
Price £8.95/cass

There is now a bewildering selection of flight simulators available for the 64. Most of these feature chunky graphics, as does *Glider Pilot*.

I have three grouses: the "F" keys do not correspond exactly to the instructions, there is a tendency for a black line to appear temporarily through the instruments, and the compass is less than perfect.

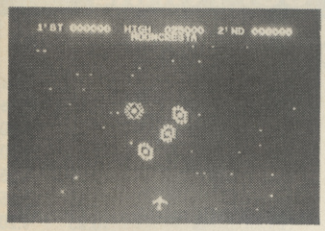
Acknowledging these faults, the program is still a worthwhile medium for would-be pilots who lack the necessary bottle to actually soar over the Dunstable Downs. It's also a novel change from normal flight simulators.

Written by a devotee of the sport, the simulation sets you the task of navigating a triangular course under competition conditions.

The aerodynamics are explained in the manual, detailing optimum cruising speeds, the art of climbing in thermals and how to interpret the specialist instrumentation. You soon learn to head for the "cauliflowers" and twirl up to today's inversion height, which is dependent on the presets chosen, as is wind speed, direction and generaly frequency of the thermals. A nice touch is the barograph trace supplied after each flight; this allows you to analyse your hash-ups. The subject is fascinating and CRL have come up with a reasonable, though not brilliant, exposition.

Regular Screen Scene readers may be wondering what has happened to CRL's *Rocky Horror Show*. The long awaited game still fails to turn up on the *Commodore User* reviews desk. "Any day now" promises spokesman David Crossweller. L.S

Presentation:	■■□□□
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■□□□



Moon Cresta
Commodore 64
Incentive
Price £6.95

Incentive have been making waves lately.

Their latest game — *Confuzion* — had the Commodore User office in a complete tizzy recently.

Now the thundering shoot 'em up — *Moon Cresta* — looks set to repeat the success of *Confuzion* for Incentive.

This is a classic arcade 'shoot 'em up' and a faithful reproduction of the original coin operated job of the same name, also known as Firebird.

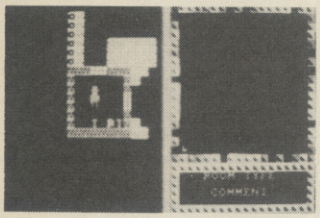
Aliens whizz all over the screen tracing out pretty patterns while you attempt to blast them into the middle of next week with your rocket ship. When several waves have been obliterated you get the chance to earn bonus points by docking with the mother ship.

Dirty tricks are employed to deprive you of your three lives. On completion of one particular wave, meteors rocket across the screen at the speed of light. The only chance of escape is if you're lucky enough to be tucked away in the corner, out of range.

Nothing new here, just sheer, unadulterated blasting pleasure. Incidentally, for those good enough to score 30,000 points Incentive are offering the chance to win an original Moon Cresta arcade machine. You'll need plenty of practice. After two or three hours the best I could manage was 10,000.

Adventure fans are in for a treat from Incentive. Their excellent *Ket Trilogy* is shortly to make an appearance on the 64. Watch out for this trilogy — it is a minor classic amongst Spectrum adventure freaks. **K.M**

Presentation:	■■■□□
Skill level:	■■■■□
Interest:	■■■□□
Value for money:	■■■□□



R.I.P.
Vic 20 (unexpanded)
Mastertronic
Price £1.99

This is just a mad-cap dash around 20 interconnected mazes, which are supposed to represent creepy crypts. I only know that because it says so on the inlay card and the Death March keeps filtering through trying to convince me of its ghoulish identity.

The mazes are shaped like skulls and fish or just amorphous . . . they are not of the 'get lost' variety. User-defined characters zoom around dressed up as monsters, spewing out some disgusting filth that looks like little arrows. That's if you possess imagination.

You need to collect a chalice from each room and avoid/shoot the manic depressives in order to play the game to the full and make everything wholesome again. Obviously all 20 rooms have to be located as it's no good covering the same ground repeatedly.

Once again the programmer (who also did the spiffing Rockman) has presented you with an expanded screen and taken the trouble to design an interesting title sequence.

Budget software is becoming increasingly popular. This month Screen Scene tests no less than eight new games with a £1.99 price tag.

The general impression of this mega cheap games review is that the latest cheap offerings aren't all that bad.

When Mastertronic started the whole cheapsoft ball rolling last year almost every single game they brought out got slammed in the press.

The quality has now improved immensely. **L.S**

Presentation:	■■■□□
Skill level:	■■□□□
Interest:	■■□□□
Value for money:	■■■■□

Operation Whirlwind
Commodore 64
Ariolasoft
Price £11.95/cass
£14.95/disk

War-gaming offers a complete break from the usual formats which are handsomely catered for on the 64. There are several scenarios available . . . but in this case *Operation Whirlwind* revolves around the capture and retention of a town.

Strategy is everything. You need a complete awareness of your forces' capabilities and vulnerabilities.

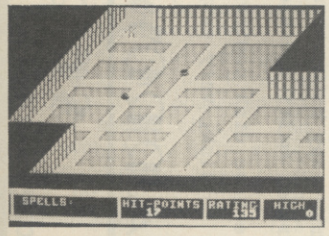
Armour and infantry need handling differently for they have inherent, distinct weaknesses and strenghts. Reconaissance units can be employed to draw the enemy's fire ready for the combat phase. That's one major divergence from an acrade battle; you have to work through five stages or modes instead of the action being immediate. And that doesn't mean you first want to get them over with as quickly as possible either.

Firstly you either 'dig in' a unit or prepare it for battle; then shift your forces around using a command cursor, taking advantage of cover from woods and gaining as much advantage as possible.

Combat mode swops the cursor for a hairline cross sight and allows you to direct fire. *Assault* or *overrun* phase provides for no-nonsense close combat or for the engineers to mend bridges. The last phase gives intelligence readouts as to the degree of success of your last manoeuvres. All that counts as one go! Phew.

The scrolling map is very clear but the miniscule symbols representing your forces take some getting used to. Four levels of play should ensure a lasting interest in the game which could well whet your appetite for more sophisticated fare. **L.S**

Presentation:	■■■
Skill level:	■■■■■
Interest:	■■■■
Value for money:	■■■■



Realm of Impossibility
Commodore 64
Ariolasoft
Price £9.95/cass
£12.95/disk

This is tantalising, slightly comical (hilarious even, in the two player mode) material and too much coding for the 64 to hold in one go. *Realm of Impossibility* is basicly a souped-up *3D Ant Attack*: how souped up? Well there's a 13 multi-screened dungeon (129 rooms) each packed with those nasties we all hold so dear, mega spiders, coily snakes and matchstick zombies.

To maximise the scale of each complex chamber all the characters are of minimum size. Their one aim in their un-dead existence is to drain away your life force with their clammy, flesh creeping touch. As you scamper about seeking keys and locks (tokens which gain you access to certain boarded-up dungeons) and magic spells you learn ye ancient crafte of dropping blocking crosses. They're not permanent but offer temporary protection if used intelligently.

The motivation behind the game is the prospect of exploring all 13 catacombs with a belly-load of laughs on the way. As far as I'm concerned the points are purely incidental.

The full perspective dungeons are superb; apart from having convincing 3D they are also complex with varied architecture, offering plenty of scope for a good poke around up and down the stairways.

One drawback is that after loading the main program each dungeon area has to be loaded in separately. At most this is a nuisance but it certainly doesn't cripple the game. If you don't find this addictive maybe you should give tiddlywinks a whirl. **L.S**

Presentation:	■■■■■
Skill level:	■■■
Interest:	■■■■
Value for money:	■■■■

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Hunchback
Vic 20 (unexpanded)
Ocean
Price £5.90

Quasimodo is hot property in the video world and it's my guess that his hunched back comes from ferrying filthy lucre to the Nat West. With the prospect of sequels-of-sequels to come, his deformity will become an enormity.

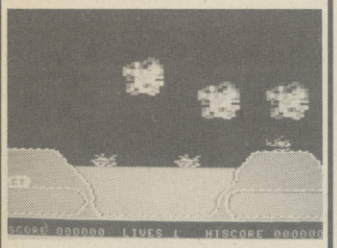
There's 15 screens (wow!) of rampart acrobatics in the basic Vic version: to complete a page you need to jump and swing your way to the bell on t'other side, spurred on by the plight of the luscious Esmerelda awaiting a rescue that's likely to be a long time coming. Time your jumps over the crenellations so as not to dash your brains out on high-flying fireballs, still watching out for sneaky skimmers. Guards are ever ready to probe tender regions with their lances and there is no stopping the geezer in the tin suit trundling along behind. By the time the lady is eventually freed, the deep fiery pit will hold no terrors for you, as familiarity breeds contempt.

Although the animation is jerky the program is well worth latching on to.

Nice to see Ocean launching a Vic game. Game-starved Vic owners will be grateful for the flood of cheapo games coming out for the old micro. But with companies like Bubble Bus (see *Cave Fighter*) and Ocean launching games for the machine, Vic gamers can also look forward to a bit of quality.

Talking about Ocean, I hear a whisper that their *Frankie Goes to Hollywood* game is about to hit the shops. No — there won't be a Vic version. But what is interesting is that it has a lot to do with "Love, Hate, Sex and War". I just hope Mike Reid hasn't got a 64. L.S

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■■□



Sky Jet
Commodore 64
Mastertronic
Price £1.99

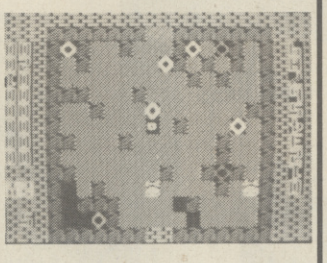
Betcha the T.V. series "Airwolf" and its software spinoff was the reason this cheapie saw the light of day. *Skyjet* is an impressively speedy and well armed helicopter destined to dodge clouds of flak whenever a 64 owner feels the need to indulge in a bout of over-the-top warfare.

Death-dealing contraptions certainly claim their fair share of screen space. Tanks keep pumping shells skywards, jets streak across the sky, saucers bob about unpredictably (don't they always) and sneaky submarines attempt to land reinforcements; make these priority targets.

Somewhere along the line you have to pluck up and ferry radar components etc. and build installations. You have rockets and depth charges yet some of the enemy seem to be encased in extra tough armour plating.

For two pounds you get a scrolling screen, ten levels of play, at least two phases and adjustable sound effects. This deceptively tricky game should provide more than a few cheap thrills for shoot-anything-that-moves merchants. L.S

Presentation:	■■■
Skill level:	■■■
Interest:	■■
Value for money:	■■■■■



Rockman
Vic 20 (unexpanded)
Mastertronic
Price £1.99

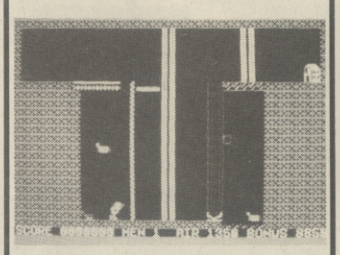
There was a time when any game ending in "man" indicated a *Pacman* clone; now he's almost forgotten.

Rockman puts me in mind of the superb *Boulder Dash* (sorry chaps 64 only) in it's general conception. You get a dramatic picture — first time buyers beware! — and the obligatory fanciful yarn concerning a wicked uncle (yawn, yawn) but darn it, the game is good, no . . . very good fare for the basic Vic.

The plush screen is fully expanded and benefits from liberal daubings of brash colour; furthermore "Popcorn" is played continuously during the game. What you have to do on each of the 20(!!!) varied pages is to collect eight diamond shaped thingamies, which are tucked away behind rocks. As you chomp away the earth, exposing the boulders, they obey the laws of gravity. This will crush sluggish Rockmen or if you're clever, the purple zombies as they stumble around in pursuit.

Each screen, then, is an arcade puzzle: you need to predetermine your excavations and be pretty nippy to boot. A good idea and a joy to play. L.S

Presentation:	■■■■■
Skill level:	■■■■
Interest:	■■■■
Value for money:	■■■■■



Bic Mac
Commodore 64
Mastertronic
Price £1.99

This game follows the well-worn footsteps (some would say furrows) of *Manic Miner* and *Blagger*. Here you are a secret agent in the guise of a power worker engaged in the hyper exciting (some would say routine) task of shutting down 18 generating stations.

This you do by throwing switches, making deft jumps, scuttling up and down ladders and avoiding no-go areas as you wend your way to each exit. Great fun if you've been lost in the Gobi desert for the last 18 months but with few surprises for old stalwarts.

The graphics are purely functional and in some places very faint on the average domestic T.V. There's no way I would take the time to work through all the screens but if there's a yawning gap in your library you could well consider this a good bet, especially if you've had no practice at avoiding the typical hazards unleashed by the security system.

At its budget price it might be worth considering if you don't really want anything special for a platform game, but don't bother buying if you want the real thing. Pay the extra instead. L.S

Presentation:	■■
Skill level:	■■■
Interest:	■
Value for money:	■■■■

Spooks
Commodore 64
Mastertronic
Price £1.99

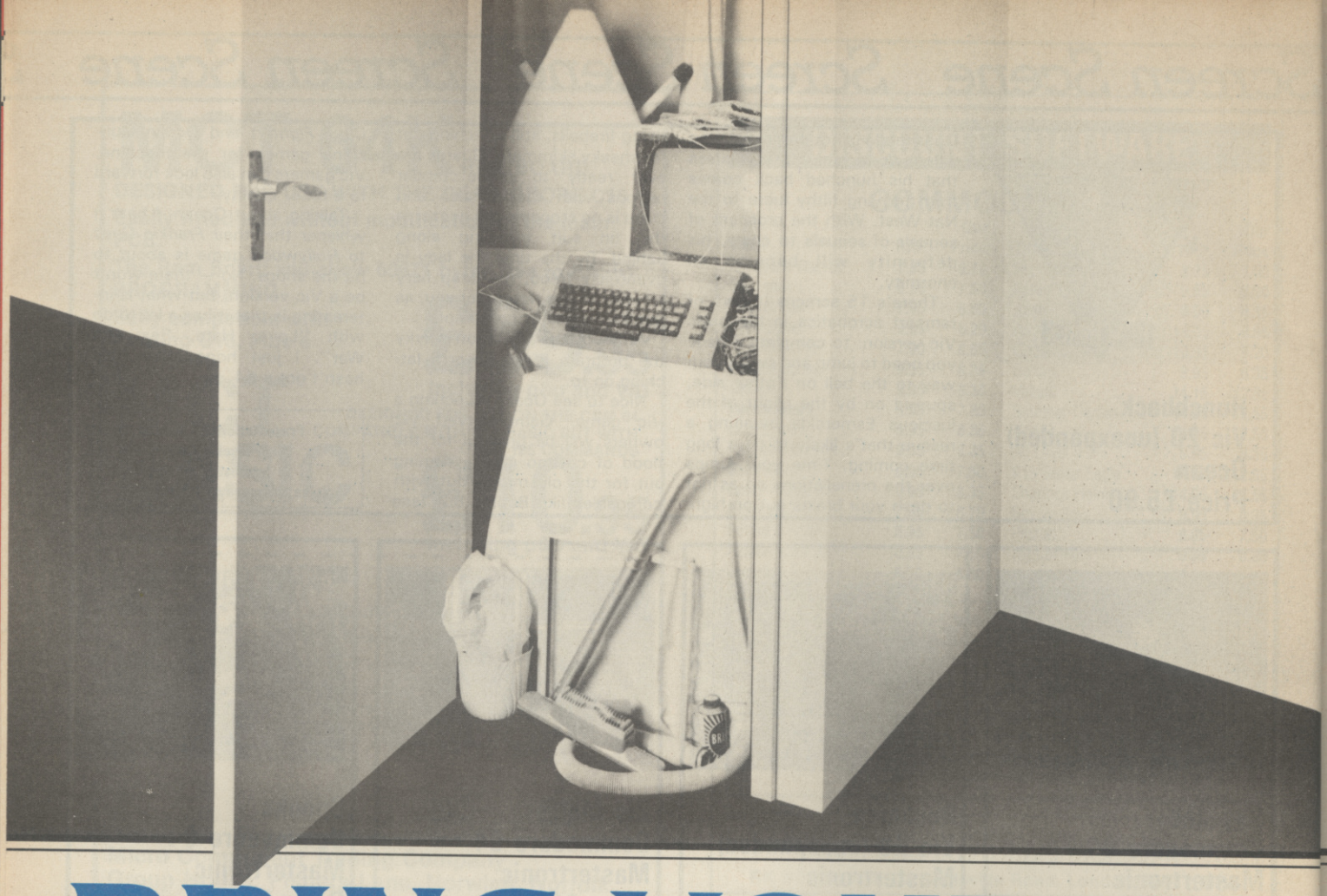
If you want to sample the flavour of an adventure game but feel quite sure that the latest interactive brain buster will lose you, this budget offering might be a good place to start.

This real-time, very graphic, arcade adventure draws the map for you as you plod on your way through a haunted house and provides a set of menu driven commands. You just enter the number. The commands are simple like: do nothing, pick up item, and eat item.

The underlying theme is for you to exorcise a vast rambling mansion and its surrounding grounds which are haunted by refugees from countless Pacman games. This megafeat is accomplished by collecting the eight fragments of a music box and playing the Death March.

Any clocks you may find en route should be set to after midnight otherwise the spirits hold a mightily unfriendly convention. You will be done to death many times as you explore the colourful chambers and the "home run" will be many playing hours away. Has to be sound as a pound when it comes to dabbling with adventures. L.S

Presentation:	■■■
Skill level:	■■
Interest:	■■■
Value for money:	■■■■■



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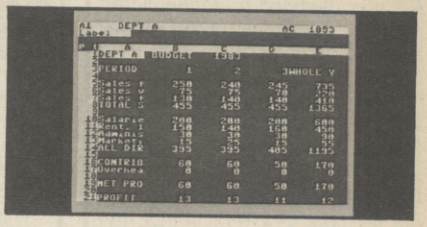

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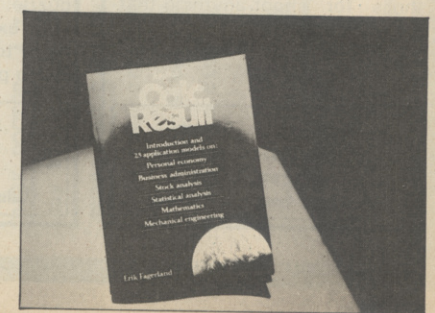
An introduction to Calc Result is given at the beginning of the book for the benefit of those not acquainted with the system. Its purpose is to give the reader a brief lesson on the use and construction of Calc Result.



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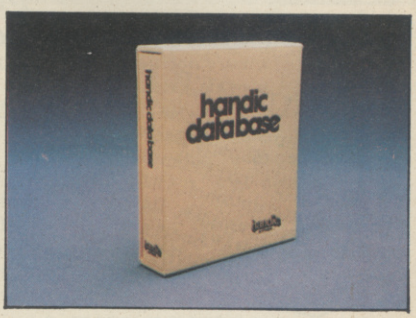

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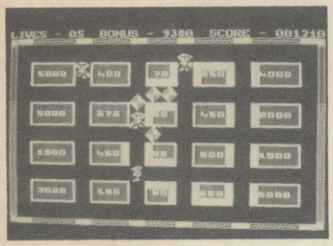


Major Blink/Berks 2
Commodore 16
CRL
Price £6.95

Apart from the subtitle, you'd be hard pushed to spot any resemblance between Major Blink and the other two Berks titles. The tenuous connection is in fact the Major, creator of the Berks, now turned painter and decorator.

This is one of those games where you have to score points by painting blocks on a grid. Supercool bears, wearing shades and gold medallions try to thwart your efforts by repainting your work. These you can dispose of with your 'fast action, high velocity, belt mounted laser cannons'.

Talk about heavy on the armaments. I must admit to feeling a bit sorry for the supercool bears, up against that lot, with only a pair of Ray-burns to protect themselves.

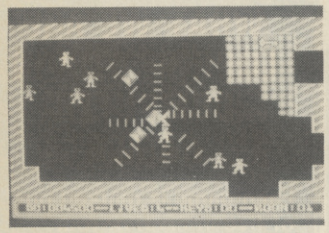
The appearance of the homing drones of *Berks 1* and *3* do little to enliven a basically lukewarm game. It might appeal to younger or less experienced games players.

Calling all Berks fans. If you are a fan of the excellent Berks series then you won't want to miss your chance to get the fourth and final game in the series absolutely free.

The game is published in listing form in our *Celebrity Book of Games* which came free with this magazine.

If you don't want to type it in it is available on tape from CRL, 9 Kings Yard, London E15. Please send cheque or postal order for £3.00. Your application must include a cut-out of this review. **K.M**

Presentation:	■■■□□
Skill level:	■■□□□
Interest:	■■□□□
Value for money:	■■□□□



Berks 3
Commodore 16
CRL
Price £6.95

They say there's one born every minute, and the rate Jon Williams is going at I can well believe it. *Berks 3* takes you back in time to the City of the Berks.

You must penetrate the Berks' inner sanctum and steal the source of their power, hoards of treasure.

On the way keys must be collected from each room. A more difficult task than it sounds, as each key is surrounded by a barrier of protective blocks, through which a path must be blasted.

To add to your problems, hordes of Berks and their faithful homing drones are constantly in hot pursuit. You start with a generous five lives and can gain an additional four by collecting the various hearts dotted around the place.

Berks 3 is, without doubt, the best of the bunch. If you don't already have Berks of one form or another, go for this one.

Calling all Berks fans. If you are a fan of the excellent Berks series then you won't want to miss your chance to get the fourth and final game in the series absolutely free.

Berks programmer — Jon Williams — has written *Baby Berks* exclusively for *Commodore User* readers. The game is published in listing form in our *Celebrity Book of Games* which came free with this magazine.

If you don't want to type it in it is available on tape from CRL, 9 Kings Yard, London E15. Please send cheque or postal order for £3.00. Your application must include a cut-out of this review. **K.M**

Presentation:	■■■■□
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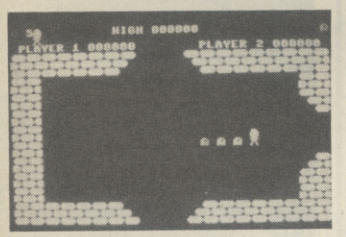


Tower of Evil
Commodore 16
Creative Sparks
Price £6.99

You control Andros, who I presume is male although he looks a bit like a cute little girl — graphics aren't the strong point of this game. Anyway, whatever he is, Andros has to scour the tower looking for his loved one who has been kidnapped by the wicked Necromancer. Hardly the most original theme in the world.

There are seven levels to the tower, each containing nine rooms. On each level there is a pile of gold to be collected and a key. The latter gains you access to the magic staircase which leads to the next level.

Each level also has its own horde of evil creatures, imaginatively described on the inlay as Ashtoroths, Warriors of Ayperos and Baphomets. In reality, this bunch of grizzlies turn out to be the usual nondescript graphics characters.

On reaching level seven, Andros has to dump all his gold into the Necromancer's high-interest treasure chest at which point his darling runs into his arms — a pretty lousy deal if you ask me.

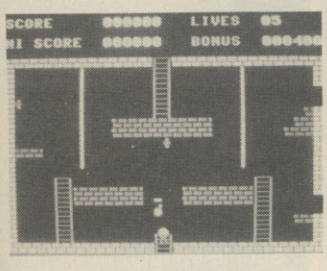
Tower of Evil won't provide much of a challenge for the hardened games player. I managed to complete it in about half an hour. The less experienced might get more lasting enjoyment from it.

This is Creative Sparks' first game for the C16. It originally appeared on the 64 and was moderately successful.

The company have a fairly extensive range of 64 games including *Danger Mouse* and the superb *Ice Palace*.

The trouble with the above games is that they are so advanced and complex that they would lose a lot in conversion to the C16. **K.M**

Presentation:	■■□□□
Skill level:	■■□□□
Interest:	■■□□□
Value for money:	■■□□□



Dark Tower
Commodore 16
Melbourne House
Price £5.95

Nobody could accuse Melbourne House of ignoring the C16. *Dark Tower* is the sixth game they've released for the machine, and a fairly ambitious one at that. In order to accommodate all 27 screens, it loads in parts, extra screens being loaded into memory during the course of the game.

As far as the fairy tales are concerned, you, Prince Harry, have been turned into a mutant by the guardian of the Dark Tower. To restore your good looks, you must visit every chamber and collect the jewels to be found therein.

The game is very much in *Jet Set Willy* mould, which means you have to attempt to negotiate a screen a dozen times before you crack the secret, but that's the fun of it after all. Things start off simply enough, but get tricky fast. The look of some screens alone is enough to put you off. My favourite is a chamber of swinging ropes which you have to cross Tarzan fashion, grabbing jewels as you go.

One of the better C16 offerings from Melbourne House and good value at under six pounds.

Melbourne House were very quick off the mark with the first commercial games for the C16.

It was a fairly average Donkey Kong rip-off called *Roller Kong*. Nothing to write home about but it is still the only Kong game for the C16.

Other games from Melbourne House for the C16 are *Classic Adventure* — a text only adventure. *Wizard and the Princess* is a simple adventure with graphics. The one thing Melbourne House haven't done yet is a version of their classic *Hobbit* game. **K.M**

Presentation:	■■■□□
Skill level:	■■■■□
Interest:	■■■■□
Value for money:	■■■■□

Cave Fighter
Vic 20 Unexpanded
Bubble Bus
Price £5.99

Just when you thought all the good games for the Vic had dried up, something excellent turns up that forces you not to write off the old micro yet.

Cave Fighter from Bubble Bus gets around the limitations of the unexpanded Vic's memory by using a clever multi-load technique.

If you manage to master the first level of this tough platform game, part two will automatically load. There are eight different loads in all.

Cave Fighter was launched originally for the 64. This Vic version will be followed by a C16 version to be launched at the Commodore Show in June.

The aim of the game is to get as far as you can into the complex of caves blasting the aliens as you travel.

It doesn't do to get too near to the aliens as they give off poisonous gasses that can kill you off without the alien even making contact with you.

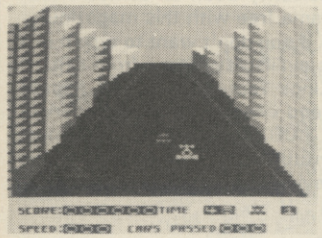
Our cave explorer is armed with an automatic laser that can be operated by simply pointing the joystick in the direction you wish to fire.

One criticism of Vic Cave Fighter is that the little man is very difficult to control. It requires differing pressure on the fire button and movement of the joystick after he has taken his leap.

I don't like games where the difficulty is controlling your character. The difficult bit should be beating the game itself — not learning how to play it.

That said *Cave Fighter* is still one of the best games I have seen for the unexpanded machine for some time. **E.L**

Presentation:	■■■■□
Skill level:	■■■■□
Interest:	■■■□□
Value for money:	■■■□□



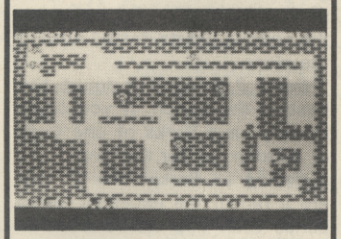
Death Race
Vic 20 (+8K)
Atlantis
Price £1.99

Atlantis have chosen a macabre insert illustration for this 3D road race program. The road is dead straight but it is in perspective. To earn the victor's laurel wreath you have to zip past 70 cars within 80 seconds; trouble is, the other drivers have obviously tanked up on the hard stuff rather than petrol causing them to wobble all over the road.

The course starts in the shadow of sky-scrapers then hammers out across a dazzlingly bright desert before reaching green fields which in turn give away to a pine forest. There's more to come as the road skirts a lake then shoots out across a bridge . . . making for another city. And so it goes on, with both night and day driving conditions. Next time round, if you have any lives left, there's a meagre 60 seconds allowed. As you accelerate up to 300mph the engine roar increases in pitch: this is not a game for lovers of peace and quiet.

Miles better than the aerial-view race games that used to plague the Vic . . . come to think of it it's pounds cheaper too. **L.S**

Presentation:	■■■■□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■■■



Mosquito
Vic 20 Unexpanded
Atlantis
Price £1.99

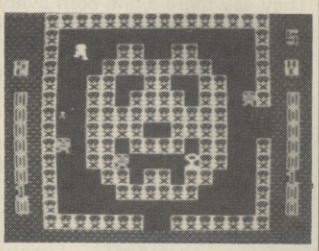
This is not the most exciting game available for the basic machine but with four screens it isn't bad. Load up and pick your way through the first maze, shove the key in your pocket and make for the door which is the cue for the next frame to flip up.

A maze would hardly be worth its salt without predatory monsters . . . these are continuously re-defined splodges, an imitation of shimmering mega-gnats, I suppose, except these don't bite they drain you dry instead. So get squirting with the fly spray. The unwary could well fall into a trap door and re-emerge near a big buzzer with no time to turn and fire.

The red brick room is a doddle but the coal cellar takes some exploring before you make good your escape 'cos you ned to discover the passages in the inky blackness. As I never completed the blue room the last screen remains an unknown quantity.

The sound effects are jolly enough but the animation is somewhat flickery. **L.S**

Presentation:	■■■□□
Skill level:	■■■□□
Interest:	■■■□□
Value for money:	■■■■■



Doodle Bug
Vic 20 Unexpanded
Mastertronic
Price £1.99

I really did think the Pacman had died of indigestion, brought on by a surfeit of pached pixels, many moons ago. Now it seems the lads & lassies of Mastertronic have dished out a hefty dose of Milk of Magnesia and revived the old charmer.

This is not a straight implementation of the game that launched a bitter law suit . . . the wobbly ghosts are transmuted into blockheads (why the mighty muncher should be the same shape beats me), there aren't any power pills but turnstiles have been shoved in through which you can spin.

Unfortunately many Vics generate a pallid yellow which renders the food parcels indistinct against the white background. A choice of six tempos is offered with one to five chasers. Clear the screen and a mildly entertaining strobing effect is your reward.

I found it about as addictive as a trip to the dentist but then I've got *Jelly Monsters* if I want a burst of pacmania. *Doodle Bug* is fine if you must have a maze gobbler, but not brilliant. **L.S**

Presentation:	■■□□□
Skill level:	■■■□□
Interest:	■■□□□
Value for money:	■■■■■

WHAT WE ARE LOOKING FOR IN COMPUTER GAMES

Each game is marked out of five in each of four categories, but what does each represent?

PRESENTATION
In this category we are looking for the quality of the instructions. Are the play details clear enough on the cassette inlay? Do they fairly and accurately describe the game? How good are the on-screen instructions? Do you keep having to refer to the box?

SKILL LEVEL
How much skill is required to get into, and master the game? Is it challenging? Do you need to think? Will it keep you amused for months or will you tire of it within minutes?

INTEREST
Is it yet another platform game, shoot 'em up, or tired old D&D adventure? In this category we are looking for originality, attention to detail and effectiveness of graphics? How interesting is it to look at as well as play?

VALUE FOR MONEY
Simple enough this category. Is the game reasonably priced for what it is when you compare it to other similar games?

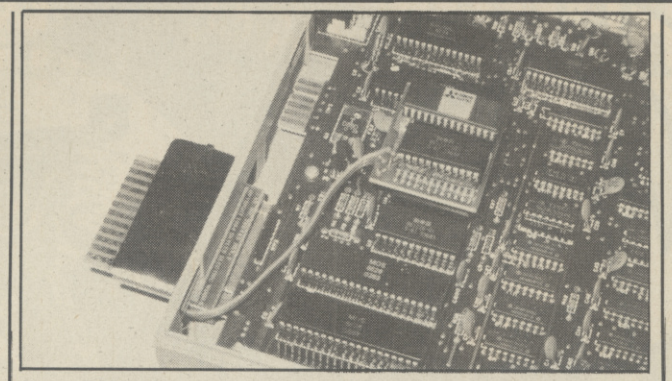
LIFE IN THE FAST LANE

1541 Flash! reviewed

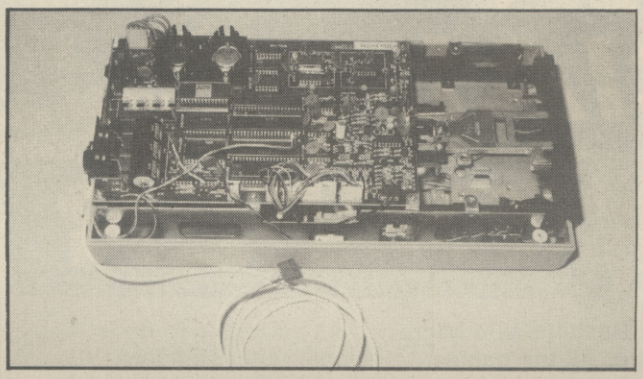
The 1541 disk drive is not noted for its speed of operation. Users have been known to brew cuppas or nod off while waiting for programs to load. Now, yet another device is available to speed matters up — 1541 Flash!, from Supersoft, but it doesn't come cheap at £80.

by Chris Durham

Using my disk drive rather a lot means that I am very aware of the 'wait state' associated with every disk access on the 1541. So it was with great interest that I received the review copy of 1541 Flash!. At last, slow loading would be a thing of the past. However, unlike some fast loaders, you can't just plug in and go since the 1541 Flash! units actually fit inside both the 64 and the disk drive (see photographs).



A new ROM chip must be fitted inside the 64 together with a small PCB that plugs into the user port



The 1541 disk drive gets another new ROM chip and two cables, one of which goes to the user port

Installation

This is definitely not for the faint-hearted; it involves removing the ROM chip in the 64 and both the ROM and one of the 6522 chips in the 1541. It also requires you to bend pins on the 6522 chip, so it's not something you can rush.

The instructions I received were pre-production, and some of the information is not applicable to the UK versions of the 1541. There are also some discrepancies in the wiring colour codes mentioned, but none of these are bad enough to prevent successful fitting. It takes about 30-35 minutes to fit both lots of new ROMs plus the connections to the 6522.

Extreme care must be taken not to bend any of the pins when fitting the ROMs into the sockets; in fact the unit supplied already had a bent pin which I had to straighten and insert correctly before the unit would work.

In addition to the two new ROM chips, there is a small PCB which plugs into the user-port; it reproduces the port however, so doesn't stop it being used by other things. There are two extra cables which go from this board to the new ROMs, so you end up with two cables going to the 1541. Overall, installation is not difficult, provided you follow the instructions closely.

Using the 1541 Flash!

The unit is said to give a three-fold speed increase and it is close enough not to quibble. It is possible to go on using the drive as normal and just get the advantage of faster loading and saving. However, there are a number of additional Disk Operating System (DOS) commands built into the new ROM to allow abbreviated commands to be used.

There are also extra editing commands and some advanced programming commands to allow machine-code access to 1541 Flash! plus a debugging facility.

If you want to revert to 'slow-mode' this can be done easily without turning off the computer; restoring 'fast-mode' is just as easy. Both can be done within a program if required. There is a hardware 'off' switch on the PCB which will turn off the new ROM commands, but this only affects the 64; you still have to send the relevant command to the 1541.

Compatibility

Obviously there is little point in having a fast-loader system if it won't work with all your software. So far it has worked quite happily with a variety of programs, including ones which use interrupts and install their own 'wedges'.

The only type of programs that resolutely refuse to work are disk copier programs; so back-up copies cannot be made. This latter fault is rather annoying since you cannot remove the 1541 Flash! very easily and switching it off has no effect; copiers just crash, presumably because they are trying to access the original ROM commands which have been altered slightly.

Since I normally make archive copies of all my disks for safety, this rather defeats the object of having a fast disk; instead of copying an entire disk in one go I have to copy one file at a time.

I have also experienced one or two problems with non-loading and false error messages. These usually occur immediately after the computer and 1541 have been switched on; a second attempt usually works. This has occurred with cartridges too, the answer being to switch off, then on again; this may just be a fault on my particular unit though.

Conclusions

1541 Flash! is a useful device for speeding up access to the disk drive. Installation does require quite a lot of care and once installed it is not easily removed. Of course, the advantage of being installed inside the machines means that it does not block either the cartridge port or any other port, leaving them all free for normal use.

It works well with the majority of software, but some programs that use the direct access DOS commands may need amending. Whether it represents good value for money at £80 is another matter. There are much cheaper units on the market and the extra facilities the 1541 Flash! offers may not justify the extra cost.

- 1541 Flash!
- Supersoft
  Winchester House
  Canning Road
  Wealdstone, Harrow
  Middx HA3 7SJ
- £80
- very fast but very expensive

We're reviewing a similar device next month, a cartridge from the American Epyx company. At £50, it's much cheaper and less fuss.

MEGA HITS

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THE COMMODORE PC

PERSONAL COMPUTER

More than just an IBM clone?

Commodore hopes that its new Personal Computer will grab a chunk of the business-micro market that IBM has dominated for so long. But if you can't beat IBM, you join it by building a 'compatible' machine. Like many others, Commodore has done just that, but more cheaply. Karl Dallas finds out how the new machine performs.

by Karl Dallas

The Background

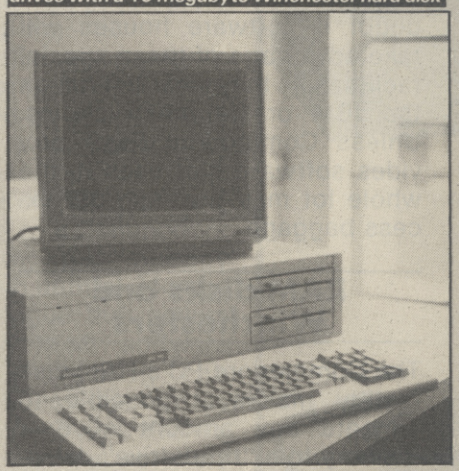
Commodore made it big in the business world with the now-venerable and obsolete 8000 (or Pet) series. Since then, they've tried regularly to crack the lucrative business market, but have never quite succeeded. The 700 series that followed the Pet was a nice concept but didn't work as planned (not to mention the 500). And the 8296, with its purported 128K memory, was a bit of a con since it was really a doubled-up 64K machine.

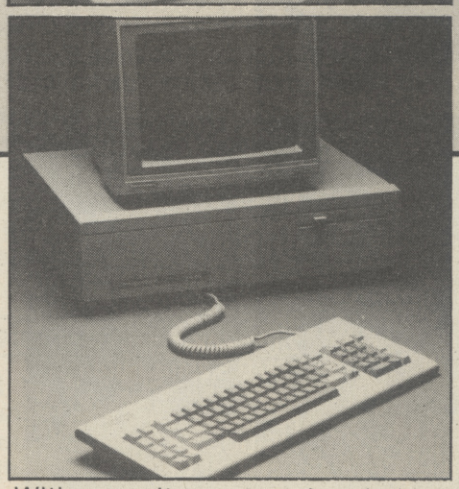
More recently Commodore played around with a Hyperion look-alike, a portable micro that Commodore bought (and adapted) from the American firm Bytec. Not that it wasn't a nice machine, it just wasn't 100 per cent compatible with the IBM PC and it was limited to 256K. Business software these days hungers for much more memory than that.

So why produce a clone of the top-selling IBM PC? It's recognised that if it wasn't for those three magic letters and IBM's corporate clout, the IBM PC would now be suffering rigor mortis. Its keyboard is clumsy, it has the old-fashioned 8088 chip and it's much slower than the Compaq (8086 chip), its nearest rival.

The answer lies in software. Confidence in IBM ensured an explosion in software availability for the IBM PC and its clones. Software houses take some persuading to write for a non-IBM disk format. To succeed, therefore, Commodore had to make its new PC run that huge and ready-made library of IBM PC software. In short, it needed to be, and is claimed to be 100 per cent IBM compatible.

The PC-10 has the standard configuration of two floppy disk drives and 256K of RAM Below: the PC-20 replaces one of the floppy disk drives with a 10 megabyte Winchester hard disk





The Commodore PC comes in two versions: the PC-10 with the standard 256K RAM, and the PC-20 with its 10 megabyte internal Winchester hard disk.

Exterior looks

Both machines look identical from the outside, each having the same huge and very square system box, measuring a massive 490mm by 390mm. This, we are told, is for the hard disk — whether it's in there or not. With a monitor on top, the whole caboodle looks rather out of proportion. Both models have twin 360K floppy disk drives at the front-right of the box. Round the back, there's the power switch, five expansion slots, a parallel and a serial port.

The keyboard is nice to use despite conforming to the unhappy IBM 'standard'; at least it doesn't have the IBM's tinny feel. Similarly, the green-screen monochrome display supplied with both units is nice and easy to read, without the irritating phosphor after-glow that disfigured some of the early 700s. There's also a colour monitor, ▶

THE COMMODORE PERSONAL COMPUTER

but that was not yet available at time of review. More about colour later.

Inside the box

Sadly Commodore has opted to conform with the IBM PC's slow 8088 central processor, running the MS-DOS operating system (which even IBM is ditching). It could and should have gone for the 'true' 16-bit and faster 8086, especially since the industry is all set for another leap forward in operating speed. There's also room for an optional 8087 arithmetic co-processor.

Board layout is neat and sparse, testimony to the progress that's been made in computer design since the IBM PC was launched two years ago. There are five expansion slots, one occupied by the video controller.

Unlike the IBM PC, these don't have to be used to expand memory. Eighteen small chip sockets are provided for this, allowing a maximum of 640K. That leaves the expansion sockets free for things like colour and specialist graphic cards. Also inside, there's a speaker which transmits a slightly unpleasant triple warble when the machine has completed its self-diagnostic routine on power-up — not half as nice as the bell on the 8000 series.

Colour and graphics

One major difference between the Commodore and IBM PCs is that the former has a more versatile colour card. Like the IBM, it offers 40 columns by 25 lines in 16 colours or 80 cols by 25 lines in 16 colours. There's the same three graphics modes: 160 by 100 pixels in 16 colours, 320 by 200 pixels in four colours or a high resolution 640 by 200 pixels in monochrome.

But, in addition, it supports four more graphics modes: 160 by 200 pixels in 16 colours, 320 by 200 pixels in 16 colours, 640 by 200 pixels in four colours and a staggeringly hi-res 640 by 352 pixel monochrome display.

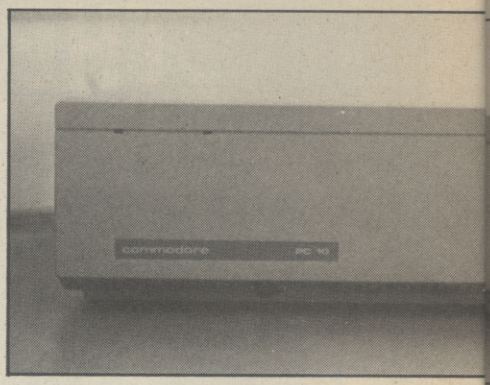
Obviously that's exciting but I doubt if software houses will take advantage of these special facilities as they wouldn't run on the IBM or its many clones. Unless Commodore itself provides software that uses it, the whole lot may become just excess baggage.

RAM disks and Winchesters

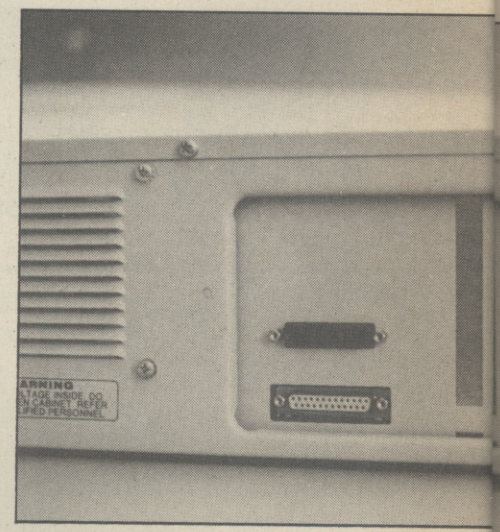
The Commodore PC's RAM-disk facility makes it possible to allocate any amount of user memory to a "third drive", labelled 'C'. That allows you to store files from disk and access them at very high speeds. Thus, on the

Commodore PC Specifications

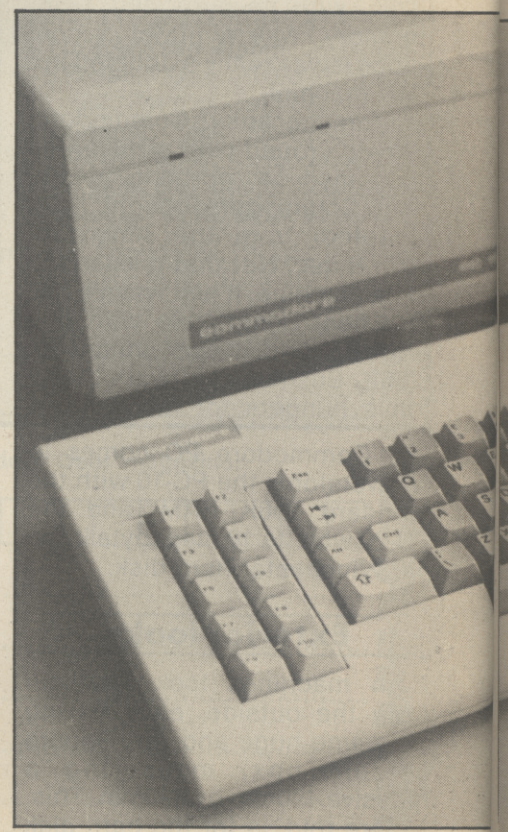
	PC-10	PC-20
cpu:	Intel 8088 (optional 8087 maths processor)	Intel 8088
Memory:	256K RAM (expandable to 512/640K RAM)	256K RAM
ROM:	8K	8K
Disk drives:	2 by 360K	2 by 360K 10MB 5.25ins hard disk
Interfaces:	parallel/serial	parallel/serial
Operating system:	MS-DOS 2.11 (also available: CP/M, Concurrent CP/M, Coherent)	MS-DOS 2.11
Languages:	GW Basic	GW Basic
Display:	12ins monochrome 14ins RGBI colour	12ins monochrome 14ins RGBI colour



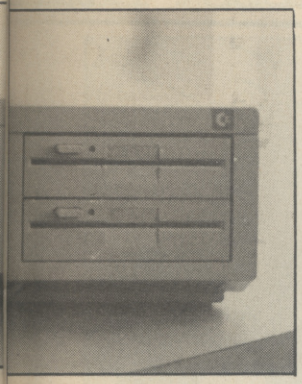
The PC has a massive and very square system box th... desk space



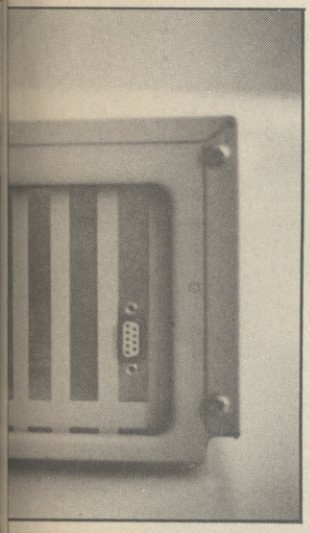
Round the back there's five expansion slots, a serial a... par



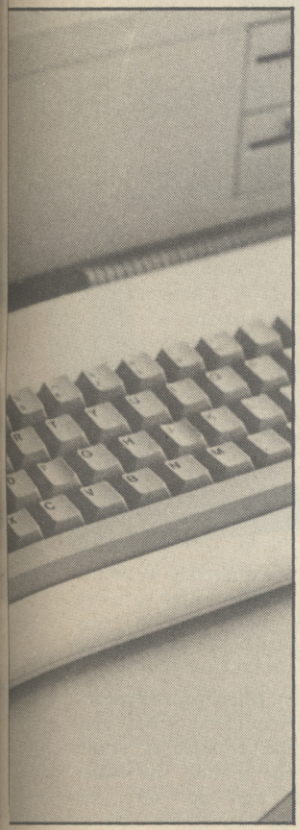
Not quite an IBM PC keyboard but very similar in design... d key



rabs more than its fair share of



a parallel printer port



d key layout

512K machine I was using, I could partition off 200K in which to store WordStar and its various overlay routines, making its constant disk access much quicker and less cumbersome.

I didn't get the chance to try the PC-20 with its built-in Winchester, but the 10 megabyte drive, so I'm told, has a data transfer speed of 500KB per second. It's also possible to attach two 70 megabyte drives externally — though Commodore has no immediate plans to market them. Perhaps some independent suppliers will take the opportunity.

Software and prices

As a PC clone, the Commodore PC ran every piece of IBM software I could throw at it. It even coped happily with an MSX program saved in ASCII format (the portability of data files and even some programs between MS-DOS and MSX-DOS is just one aspect of the IBM/MS-DOS story which few British commentators have picked up on).

I didn't get the opportunity to run benchmarks, but performance seemed up to IBM standards — and a lot faster than the 8000 series.

P and P Micro Distributors, now appointed as a Commodore PC distributor, has already published a substantial 34-page software catalogue that covers all the major 16-bit software packages, including the 'integrating' ones like Lotus 1-2-3 and Ashton Tate's Framework. Getting just the software you want should be no problem.

And now for money matters. At only £1675 for the basic 256K machine, I imagine the price will be this machine's real attraction — though £2795 for the PC-20 is a little less competitive. And no prices were available for the cost of RAM expansion chips.

Conclusions

The fact that the Commodore PC is a little more than an IBM clone will come as a pleasant bonus rather than the main buying decision, which must simply be that the price is right, especially for the basic 256K version. □

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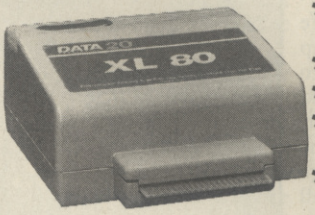

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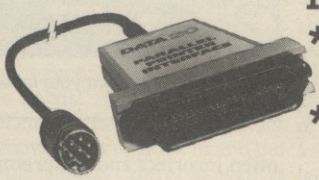

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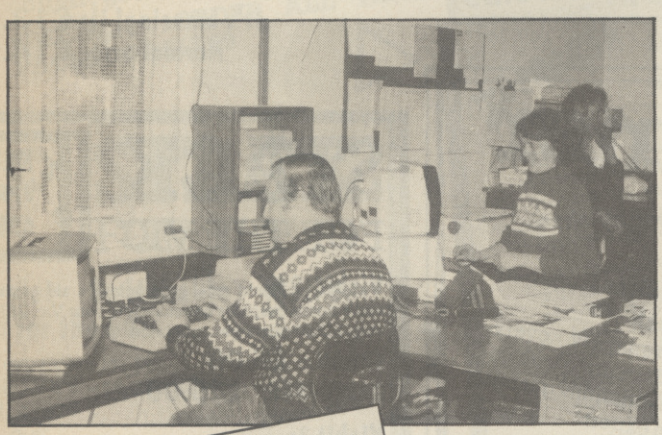

"If we could do it all again, knowing what I know now, I would certainly consider the Commodore again"

So the only answer was another computer and printer which would let Edwin print labels of varying sizes as and when required.

Hardware for the nursery

A trip to a local dealer in 1982 seemed to provide the answer: A Commodore 64 and 1541 disc drive hooked up to an Epson RX80-FT printer. The choice of computer was largely determined by Harold's preference for BASIC 2.0, which he describes as being 'more user friendly' than others, such as that found on the BBC. Possibly it bears more of a resemblance to the Adler's Basic than some of its less conventional rivals.

The nursery's large variety of stock — literally thousands of different plants and shrubs — required a reasonably large memory, which the 64, backed up by disc seemed well equipped to provide. The last remaining hardware requirement, variable print size and typeface, provided no problem for the versatile Epson.

On the software front, Edwin decided to go for the Do It Yourself approach. He'd already been bitten with the Adler. Perhaps more importantly, there was precious little business software to be had for the 64 in those early days. Even today, the likelihood of finding a commercial package to suit the nursery's specific requirements is slim.

But the results can be seen all over the nursery. The rectangular white labels suspended on poles in neat, regular lines give it the morbid appearance of a military graveyard. But to see the 64 in action I went to Edwin's home, conveniently situated just round the corner, where the bulk of the labelling operation is carried out.

DIY programming

Harold's approach to the problem was to write a simple file-handling system which holds up to fifty items on one file, stored on disk as a sequential file. Although the 64 has enough memory to hold much larger files, the fifty item limit was imposed to speed up data transfer from the relatively slow 1541 disc drive.

Each item is stored as a string and is separated into five fields which hold information such as the name, a brief description, the height, and the price. The program is menu driven and offers many of the facilities you expect on a good database. The whole file can be listed to the screen or individual items can be output and altered — so you can change prices easily.

Again, the whole file can be listed to the printer, or for labelling purposes, a single item can be printed any number of times onto continuous stationary.

Two kinds of label are produced: a large header label describing what's to be found in a particular plot, and smaller labels for the individual items. Provision has also been made in the program for stock control, although, due to programming difficulties, this is not yet fully operational.

Edwin confidently assured me this was purely a question of time, probably a job for the winter months when business is less hectic. When complete, it will enable the firm to keep track of movements of stock in and out of the garden centre, as well as providing useful sales statistics.

Sorting out the bugs

The program isn't the most smooth running, user-friendly piece of software I've ever seen. Sometimes it hangs up, only to be restored by the hasty input of a couple of lines of Basic.

But Edwin is quick to defend his brainchild. "The thing about writing your own programs is that when they go wrong you usually know where and why, so it's a simple matter to put things right."

His point is a valid one. The program works well enough in that it does the job it was designed for. In fact, his sales have increased significantly since the sytem was introduced. And he's saved time by not having to write thousands of labels by hand each time prices increase or the ravages of the English climate destroy the old ones. Epson print is remarkably permanent!

Future plans

Edwin is keen to extend it until every plant and shrub in the nursery is labelled, a mammoth task given the size of the stock. But does he plan to use the 64 in other areas, and what has he learnt from his mixed experience with computerisation?

"I was very interested in producing large, supermarket-type posters advertising special offers and that kind of thing. But so far, I've not been able to find the software to do the job.

"I tried Poster Paster by Bubblebus but couldn't get it to work with the Epson printer. I've also spent a good deal of time typing in an accounts program from a business applications book but I'm also having problems getting that to run. At the time we bought the Adler I had never touched a computer in my life, so I suppose I was greener than most people (I ignored the pun).

"If we could do it all again, knowing what I know now, I'd certainly consider the Commodore again. It really would have been worth buying three: one for labelling, one for the accounts and one for word processing, perhaps all sharing one printer. The only drawback of the Commodore system is the disc drive — it's not really fast enough for business use."

Conclusions

Whilst Windsor Farm Nursery's experience of commercial business software may not be typical, it's certainly the case that, for first time buyers, choosing the right micro and software is anything but easy. Mistakes can be costly, both in terms of money and wasted time.

The Cottinghams have shown that, for certain applications, your own software running on a Commodore 64 can do the job just as well and for a fraction of the cost. □

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BOOK Corner

The most useful books we've found for the Vic and 64. Most by the founding editor of Commodore User.

The Complete Commodore 64: Dennis Jarrett

Another excellent book – covering all the angles of the 64; business as well as pleasure to help both beginners and experts alike.
It also contains valuable information if you're using disks, printers, modems and colour monitors with your system. A must!

Commodore 64 Subroutine Cookbook: David Busch

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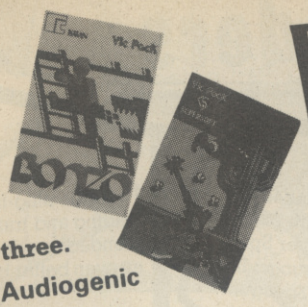

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Very neat, very clever – and really useful too ... and at a discount from the normal RRP of £4.50.

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Four-slot Switchable Motherboard for the 64

Instant expansion for the 64. Plugs into the cartridge slot, lets you plug in up to four cartridges.

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Run any printer (or plotter, or maybe even modem) on your 64. These interfaces by Stack convert the 64's odd IEEE signals into something the printer can handle.

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A programmer's aid cartridge for the 64 from Stack. Adds twenty toolkit commands to Basic (auto line number and renumber, find, step, trace, etc: plus hex-dec converter) and a comprehensive monitor and disassembler and several single-key disk-handling commands.

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Handy gadget plugs in to the Commodore 16 joystick port and allows you to use any "D" type Atari/CBM/Vic-20 joystick. Eg: the Stack Zap-proof.

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Serial IEEE to Centronics converter which doesn't use any program memory space. Plugs into the user port on Vic or 64 to interface with most printers (either daisywheel or dot matrix), and will work with most commercial packages. A RAM Electronics product RRP £49.95

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Whitby Computers' amazing tape makes the Commodore 64 think it's a Spectrum 48K, bit of a downgrade? True, but now you can enter Spectrum basic programs and magazine listings. Includes manual on how to program in Spectrum basic.

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Tommy's Tips Tommy's Tips Tommy's Tips

PROGRAMMERS AID

***Dear Tommy*, I have recently bought a mother-board for my Vic-20 and find that when I have more than the nominal 3K memory (up to 28K in fact) I cannot use the Programmers Aid Cartridge — it seems to take up 3K of memory. When I try to activate the cartridge nothing happens. Am I intruding on the available memory?**

Is there any way I can reconfigure the memory so that I can use the Programmers Cartridge?

The Programmer's Aid cartridge normally fills the memory slot in Block 3 (i.e. the third 8K RAM slot). This means that you cannot use more than 16K RAM expansion with this cartridge. If however, you are having problems when you have *less* than 16K plugged in then I suggest you may have a faulty cartridge, in which case a check by your dealer would seem to be the best bet.

Also, do make sure that any switches on the mother-board are set correctly to allow the cartridge to be accessed when you have others plugged in — some motherboards allow you to select only certain sockets.

VARIABLE PROBLEM

***Dear Tommy*, I've built a useful little 'Upcoming Dates' program for my 64 whereby I punch in today's date, and the screen shows (rolling at one day a second) whose birthday's coming, when the rent's due, and so on.**

Converting today's date into a number from 1 to 365 took a few simple lines. But the next step had to be 365 lines such as (for 1 January) "10010 IF X = 50010 GOTO 50010". What's wanted is a simple "GOTO X", which of course doesn't work, though I've tried many ways round it. Is there a way of using a variable as a GOTO number?

The only easy way of getting a 'computed' GOTO is to use an ON X GOTO, but to do 365 values would still take a number of lines. However, if you want to do it that way then you can use the fact that if the value of X is greater than the number of choices, it 'falls through' to the next line. The following example shows the code needed:

```
100 ON X GOTO 1000, 2000,
    3000, 4000, 5000
200 ON (X-5) GOTO 6000,
    7000, 8000, 9000, 10000
300 ON (X-10) GOTO 11000,
    12000, 13000, 14000, 15000
```

Thus X can be any value between 1 and 15. How many line numbers you get per line will depend on their size, but you should manage at least 11, which would reduce the number of lines from 365 to just 34. However, this is still rather an inefficient way of achieving the object. Without knowing how you store your data it is difficult to be precise, but assuming you use a string array of some sort why not use that fact to use a loop rather than dozens of GOTOs.

By storing the information for day 6 in element 6 of the array you can output a scrolling screen merely by printing the array elements in order. Since the code to print each string is presumably the same this can all be incorporated in the loop. The start value is today's date converted into your number between 1 and 365 (X) and your limit value is the end of the month or a fixed number of days displayed, whatever you want. For example:

```
100 ENDX = X+30: IF
    ENDX > 365 THEN
    ENDX = 365
110 FOR DAYS = X TO
    ENDX
120 PRINT DATE$
130 PRINT LEFT$ (MSG$
    (DAYS), 40)
140 PRINT RIGHT$ (MSG$
    (DAYS), 40)
150 NEXT DAYS
```

This would allow you to print 2×40 character lines for each day, with any pause being inserted between lines 140 and 150.

BUYER'S GUIDE

***Dear Tommy*, Please could you give me some advice about buying a disk drive for my Commodore 64. I have heard the 1541 is rather unreliable and slow. So I want to purchase a different one.**

I've also heard that Commodore are producing a different drive for the 64 soon. If so could you advise me when it is coming and how much it will cost and if it is any good.

Finally what is the main Commodore user club, please could you give me an address, thank you very much and congratulations on a good publication.

Yes, the 1541 drive is rather slow, but this is partly due to the serial bus which connects it to the 64. There are however, a number of "speed-it-up" devices on the market such as the **1541 Flash!** from Supersoft and the **1541 Express** from RAM Electronics. Prices range from £80 for the former to £50 for the latter, with both giving speed gains of about three times.

As for the unreliability factor, it really depends on how much you are going to use your drives. The average hobbyist should get a couple of years use before starting to get faults, but if you are going to subject them to heavy use (nearly every day for several hours) then you will probably be lucky to get nine months trouble free use.

Of course, if it goes wrong under warranty you can get it repaired free, but the very fact that it is heavily used normally means inconvenience if it takes the usual 6 weeks to get repaired by Commodore!

The new drives which have been announced are the 1542, designed for use with the 16 and Plus/4 and the 1571 which is for the new Commodore 128. The latter drive is definitely not available yet, but I haven't seen too many of them about! However, neither of these will run any faster than the 1541 and their reliability has yet to be tested. My advice is to stick with the 1541 at present since I assume you do not want to go to the expense of a IEEE parallel interface with a twin 8250 drive.

The main Commodore user club is ICPUG, the **Independent Commodore Products User Group**. They can be contacted by writing to:

Jack Cohen,
Membership Secretary,
ICPUG,
30 Branchester Road,
Newbury Park,
Ilford, Essex, IG2 7EP.

remembering of course to enclose a SAE, or telephone 01-590 8849 for more details. Subs are £10 a year which includes access to a free software library amongst other benefits.

CURSOR SPEED

***Dear Tommy*, I notice that on some computers, the cursor travels across the screen faster than with my Commodore 64, and on others it seems to move a lot slower. Is there any way I can control or alter the speed of the 64's cursor?**

There's quite a simple way of controlling the speed of your cursor which involves a direct POKE command.

Type in: POKE 56325, XX — where 'XX' is any number from 0 to 255. If you PEEK the same location, you'll see that the normal value for 'XX' is 58. It follows that the lower the number, the faster the cursor will move. Inputting a higher value will slow the cursor down.

SCREEN CLEAR

***Dear Tommy*, When I was using my now part-exchanged Vic, the screen did not blank when I was loading and saving with the datasette. Now that I've moved up to the 64, I notice that all I get is a blank pale-blue screen during these operations. This is rather disconcerting. Can you explain this mystery for me?**

The simple answer to your question is that the 64 actually turns off the screen when using the datasette to avoid interference by the Vic II chip during cassette operations.

The video chip grabs control over the computer at unpredictable intervals to service its own needs. Because of the processing delay this causes, the VIC chip would actually disrupt the exact timing routines used when loading and saving. So it must be disabled during these operations.

DIP SWITCHES

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To find out how to set DIP switches, you'll need to consult the relevant section in your printer manual. Generally, they control things like character sets, paper length, perforation skip-over, line feed and a load of other things. You'll just have to experiment with them to get what you want. Don't worry: setting them incorrectly won't do any internal damage.

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Make with the Mogwai

Youngsters who couldn't bluff their way past the commissionaire to see the movie can at least get to share the screen with Billy, Gizmo and Stripe in Brian Howarth's pretty faithful adaptation of **Gremlins** for Adventure International — and in no time at all join in the fun of trying to liquidate the cuddlesome carnivores terrorising Kingston Falls.

It's hardly surprising that AI should latch on to another hot property given their own success already with *The Hulk* and *Spiderman*, and Activision with *Ghostbusters*. What is interesting is that Scott Adams himself doesn't seem to have taken a hand in what is obviously a very important title to AI this year and that its creation should have been entrusted instead to a true Brit.

Go Gremlin bashing in Adventure International's latest

Still, it will be remembered that AI have already shown their faith in Brian Howarth's work, having snapped up the rights to his numerous earlier Mysterious Adventures — such as *The Golden Baton* and *Ten Little Indians* — when Howarth's original publishers, Channel 8, hit trading problems.

If my fanfare for his first all-new title under the AI banner sounds a little muted, maybe it's because I'm not too sure whether *Gremlins* does all it should to enhance this author's well-earned reputation. For a start, the player first finds himself being constantly dispatched by a dart-throwing Gremlin in one room and knocked to the ground by one of his scaley pupa buddies in another.

If my memory serves me right, the device of setting a fairly tough teaser to solve at the very first location is a Howarth hallmark (I still wake up nights shrieking about that vending machine in *Waxworks*) but the younger player may find such immobility discouraging, with not even the excellence of the graphics — the best ever from AI, I would say — enough, perhaps, to compensate for the frustration.

No complaints, though, about the intended flexibility of inputs, with the ability to enter Hobbit-like multiple-instruction statements and full sentences plus time-saving commands such as TAKE ALL. What I did find irritating, though was an occasional refusal to accept commands actually listed in the hints leaflet that comes with the game.

For example, trying HIT or HELP in the two earliest locations produces the response, "Hit/help is a word I don't know". Not, as one would expect, "You can't do that here" or "I can't help you here". My experience is that even novice adventurers don't mind — even positively adore — untangling the most devious challenges, provided that the most misguided inputs still produce reasonable responses. When they don't, this tends to cast doubt over the integrity of the game's logic as a whole. Fundamental bugs are not what one expects from AI or Brian Howarth.

That said, anyone who does persevere will surely find Gremlins full of ingenuity, fun and visual delight — yes, the graphics really are first rate. And if, like me, you can't escape the fate of serving as target practice for a miscreant Mogwai, you can always send AI a large SAE for a free hint sheet — or call them on 021-359 0801 for info about their hint books.

WIN LEVEL NINE GAMES

The screen shots you see here are taken from Level Nine's latest adventure, *Emerald Isle*. There are one hundred and ten screens here — though the game actually has many more than this.

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To win a prize, study carefully the screens in the photograph. All you have to do is tell us as many items you can spot with the letters L (for Level), N (for Nine), C (for Commodore), and U (for User).

Write your list out on a spare piece of paper and send off with the completed coupon below to Commodore User, Level Nine Competition, Priory Court, 30-32 Farringdon Lane, London EC1R 3AU. Entries must reach us no later than 25th June 1985.

Name.....

Address.....

.....

.....

My favourite three adventure games are

1.....

2.....

3.....

That Condor moment

Last month I probably bored everyone silly raving about the brilliantly fresh visual quality of the graphics in Mindshadow, the pricey (perhaps priciest-ever) disk adventure from Activision. Now I can bore everyone even sillier with the news that its sister title, **The Tracer Sanction**, has been giving me equal cause for admiration over the couple of weeks I've been exploring it.

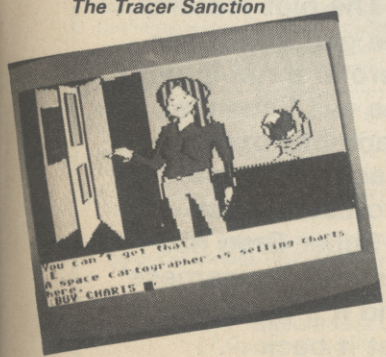
The challenge here is to track down an interplanetary criminal named The Wing by exploring the near galaxy in your role as an agent for the Stellar Intelligence Agency. You leave base with some all-important charts and sufficient fuel in your personal space cruiser to explore as many of the 80 possible locations as possible.

What makes the non-too original scenario so pleasurable to work through is the sheer scope of the player aids available to you. All eight of those usually redundant function keys are utilised to make gaming really easy; for example, touching one key allows you to SAVE up to 10 separately identified attempts, while another offers a fast quicksave routine best-used before a risky move.

You can also summon Condor — a lugubrious help-mate who'll let slip up to three clues during the course of any one game. Also helpful is the facility to toggle between the last 24 lines of text and the current graphics screen at any time just by hitting Return. All this in addition to the ability to input full-sentence commands.

Another winning feature — shared by Mindshadow — is that the double-sided disk carries a demo tutorial which takes the absolute beginner through the rudiments of playing a computer adventure. It includes a reference list of key commands.

The Tracer Sanction



Condor dispenses clues in the Tracer Sanction

At £19.95, The Tracer Sanction is £2 more expensive than the excellent new disk version of *The Hobbit*. Certainly it's not as sophisticated in some respects, but both are examples of the kind of quality you can get if you're prepared to peel off that green folding stuff.

Adventuring on the cheap

Just in case you're beginning to think that we're only here to please readers who can pay for their software with Gold American Express cards, how does this grab you? A thumping good traditional role — playing dungeons and dragons text adventure by Derek Brewster which sold at £7.95 when released for the Spectrum, now available in a 64 version for the first time at only £2.99, thanks to the budget label Atlantis Gold.

In **Velnor's Lair**, you can choose to search out and defeat your devilish foe in his labyrinthine retreat by taking the guise of a warrior, wizard or priest — with attributes and disadvantages appropriate to each. Magic objects, powerful spells, careful mapping and sheer cunning can bring you success — but frequent combat and bad strategy will soon mark you down as a candidate for a wooden overcoat.

True, Velnor's Lair doesn't boast 731 locations, full-colour 3D animated graphics, or the chance to win £25,000 and a night out in Sir Clive Sinclair's battery mobile. But it does offer hours of entertainment at a ridiculously low price. And just in case it isn't ridiculously low enough for you, watch out for next month's review of **Africa Gardens**, a text adventure from Gilsoft that'll cost you all of £1.99.

The Tracer Sanction

Book Look

Where do you find some of the best computer books — especially if it's adventures you're after? In the children's section, that's where. New from Pan Books, in their Piccolo Factbook series, is **Computer Projects**, which is jam-packed with useful little programs — including a quiz writer, a mini database, and a neat little text adventure.

What's particularly admirable about the latter is that there's a line-by-line explanation of the program, which incorporates some quite clever techniques such as randomised eventing; and of course these routines can be adapted for use in your own programs. Great value at £1.75.

● COMPETITION ●

There's a fortune to be made by some bright spark who remixes the theme music from Shadowfire and releases it as a single — but few soundtracks are so memorable. One best-selling 64 adventure was, perhaps, famous for having no music or sound effects at all. Was it (A) Spiderman, (B) Heroes of Karn, or (C) The Lords of Midnight? If you give the right answer, you're in with a chance of winning a double-pack of no-nonsense joystick-wrenching arcaders from Interdisk.

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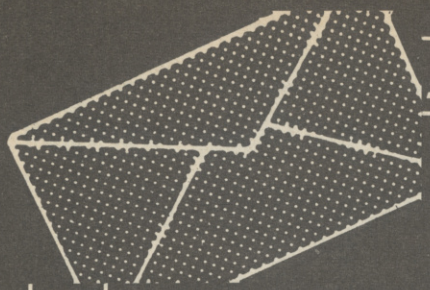

Letters Letters Letters Letters

Adventure tips

As an avid reader of your super magazine I thought it was about time I put ink to paper to write to you. It is concerning the program in 'Victuals' (March issue) entitled 2-D Spiral by Neil Phillips for the CBM 64. My first point is to say it can also be typed in on a Vic and works exactly the same as the 64. One thing for any CBM 64 or Vic owner concerning that program, try pressing shift and 2, therefore creating ". The screen fills with these, spaces, cursor ups, down, and left. Why this is I can't figure out.

Would you be able to help me with a couple of adventures because at present I am totally stuck? If any reader has completed or got far on the adventures *Curse of the Werewolf* or *Rescue from Castle Dread* from Terminal Software I would be grateful for ANY assistance.

That's enough of your help, let me give you some Vic Tips. POKEing 650, 128 makes all keys auto-repeat, POKEing 650,0 stops this and POKEing 650,64 cancels every key. Use SYS64802 to return to a start screen, this wipes out all memory yet leaves any graphics in memory.

Andrew Philpott,
115 Fordwich,
Hertford,
Herts. SG14 2DF.

Micronet Talkback

I'd just like to say . . . That the reason the average Compunetter logs on for 10 min is the shortage of access points while Prestel has them in the remotest of places. I have a local call to Prestel. No C.net for over 100 miles.

R. Paul Wood,
Bwlcyn,
Trefor,
Caernarfon,
Gwynedd LL54 5HG.

I'd just like to say . . . thanks for an interesting and informative magazine. Hope that more space can be given to the Happy Hacker. What's this about a satellite interface? Beam me up Scottie.

Terance Michael Bloomfield,
56 Astra Drive,
River View Park,
Estate,
Gravesend,
Kent DA12 4PY.

I'd just like to say . . . Why don't you put a Telesoftware Service on Commodore User like Your Computer has. I get Commodore User every month and think it is very good. Regards
Zma

Matthew Middleton,
Rushley Walls,
Sugar Lane,
Whiteley Green,
Macclesfield,
Ches.

I'd just like to say . . . great mag, more serious software please.

John O'Brien,
129 Peat Road,
Glasgow G53 6LD.

I'd just like to say . . .
That I have just completed Microgen's *Pyjamarama*. Has anyone else done this? I would be most willing to help anyone who has been having problems with this brilliant game. If they enclose an SAE I will send them the solution.

Mr. J.G. Gunning,
35 Greystown Park,
Upper Malone,
Belfast BT9 6UP.

I'd just like to say . . .
Can anyone tell me how to get up the stairs in the adventure *Mystery at Munroe Manor* please. Any other hints on this would be appreciated.

Mrs. S. Wright,
16 Waltham Walk,
Eye,
Peterborough.

Karnath-Bragger

I have completed the *Staff of Karnath*! Yes, I was bewildered too! The 16th Pentangle makes the Obelisk door lift up, and you see the Staff! I tried shooting it using the Menhir spell, as this spell had not been used before, and amazingly it worked! Am I the first person, you know of who has completed it, I would like to contact him (or her!).

David Charles,
6, Gelert Avenue,
Leicester,
LE5 2NS.

Surely David Charles isn't the only person to have completed Karnath — is he?

Volcano erupts

Here is a tip for those who are stuck on Mission 1 Project Volcano for the Commodore 64. If you want to find the code to destruct the computer this is what you do. First type LOAD, press RETURN when the first part has loaded and you get a flashing cursor, stop tape, turn off machine, turn back on, and type LOAD and press RETURN again.

When the second part has loaded and you get a flashing cursor type RUN and press RETURN and the game will start but then it will crash. Now Type PRINT OX% and up will come the code number.

Graham Wright,
'Hazeldene',
Market Place,
Kessingland,
Suffolk NR33 7TE.

Contact down-under

We would like you to include details of our group when you next publish a 'USER GROUP' listing.

Our group the Southport Commodore Computer Users Group has now been going for 18 months, meeting weekly at the Labrador State Primary School, Turpin Road, Labrador, QLD., Australia.

We would like to establish regular contact with groups in the United Kingdom to help us overcome the shortage of up to date information, as magazines from the U.K. are usually 3 months old before they become available here.

Air mail subscription is not the answer as the price of each magazine would then be around £3.00, rather a lot of money for a magazine no matter how good it is.

Looking forward to seeing our listing in a future issue.

S.C.C.U.G.,
Box 790,
Southport,
Queensland,
Australia 4215.

Tommy Praise

By the time the home computer arrived I had already been on this planet earth for some 60 years plus, and I am more than pleased that it arrived before I departed.

I have had my Commodore 64 for one year and to be honest I do not find computing easy, I don't buy games as such; apart from *Heathrow Air Traffic Control* and *Solo Flight* I have none. My pleasure comes from trying to write simple programs. I am writing to thank you for the 8 lines on using the joystick (Tommy's Tips, April), I have had to use cursors before.

For some reason I did not discover Commodore User until December 84 and in particular Tommy's Tips which I think are most helpful and constructive, I feel it a great pity that the Editor cannot see his way clear to giving the column a couple of more pages, there must be thousands like myself who go straight to that page.

Ben Reynolds,
13 The Close,
Selsey,
West Sussex,
PO 20 0ET.

Lightning Club

I wonder if you would be kind enough to print this letter to let purchasers of Oasis Software's "White Lightning" for the Commodore 64 know of the formation of the C64 White Lightning Users Group.

An s.a.e. will bring further details.

David Russell,
146 Hill Top Drive,
Rochdale,
Lancs. OL11 2RZ.

Radio Hamming

Being both a Commodore user and amateur radio enthusiast, I was very pleased to read your current Micro-Wave radio series. One point I would like to make, referring to Part 3 of the series in your May issue, is that you must have a licence before you can undertake radio transmissions, and that transmitting without one is an offence.

Getting a licence involves taking a proficiency exam. For further details, readers might like to contact the Radio Society of Great Britain whose telephone number is: Potters Bar 59015. Keep up the good work.

A. Timmins,
Clarksfield,
Oldham,
Greater Manchester.

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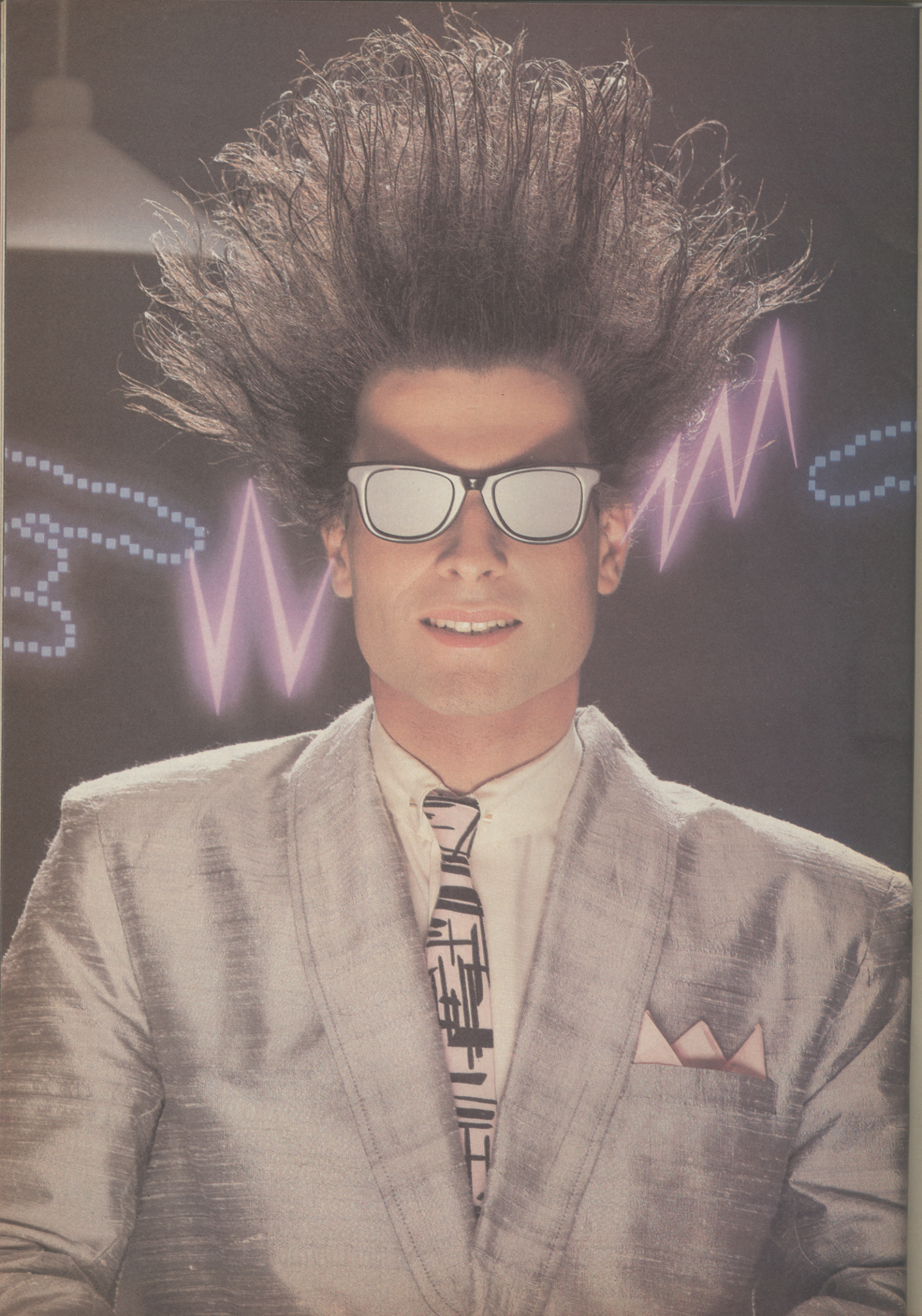

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A Polish Jew, Tramiel takes his horrific memories of Auschwitz to America after the Second World War. He drives a New York cab and repairs typewriters, gets involved with business machines, pocket calculators and finally computers. From there it's non-stop to the top — the top being the building of the biggest home-computer company in the world.

To add a bit of spice to the story, he acquires the reputation of being a ruthless, pugnacious and big-mouth entrepreneur — this is the stuff that Dallas is made of. So it's a great story and it takes a sensitive and perceptive writer to make the most of it. Sadly, Michael Tomczyk fails on both counts.

Describing his tome as 'an insider's account' of Commodore and Tramiel, Tomczyk fails to take a detached view, fails to show any modesty as to his own involvement in the Great Events and fails to give any valuable insights into Tramiel himself.

Why? Because to Tomczyk, also of Polish extraction, Tramiel has reached Olympian proportions. His business practices may be ruthless, he may sack people as easily as ordering a burger, but he can do nothing wrong. And Tomczyk is quick with the justifications.

But Tomczyk's worst offence is his constant use of the 'War' metaphor which Tramiel himself coined in his much-quoted "business is war" statement. So the Commodorians are described as 'guerillas' and 'admirals' and 'generals'. But the worst offence is saved for Tramiel himself: "Jack was not just a president or company founder. He was a *presence*, like Mahatma Gandhi must have been a presence".

Despite the lousy writing, there is a lot to be gleaned from this book. Tomczyk's story starts with his own arrival, just when the Vic was being developed. He takes us through that, on to the 64 and finally, to Tramiel's departure and intention to buy up Atari. If you can scrape off the turgid and mundane details of who's who at Commodore, you've got some useful material.

In short, Michael Tomczyk has managed to ruin what amounts to a great story — his material is strong but his writing gets up your nose. If Tramiel makes an equally big success of Atari, let's hope someone else gets to write the sequel.

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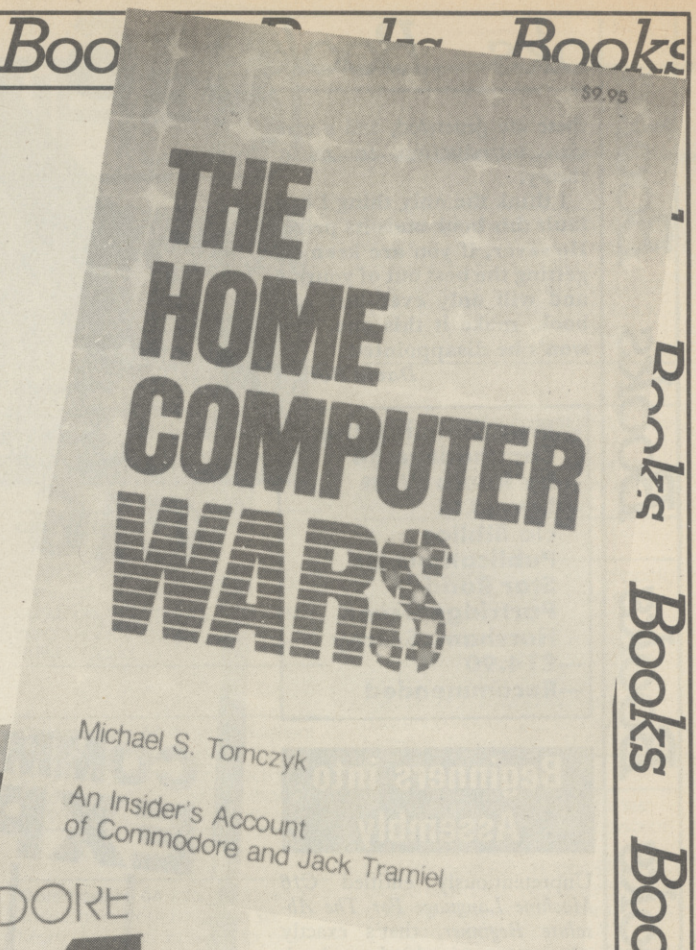

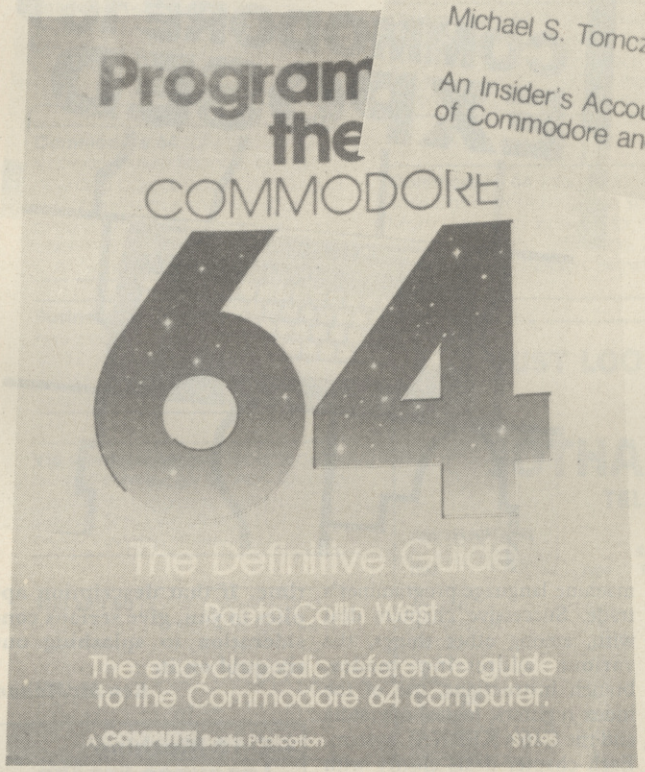

64 goes West

Four years ago I bought my first computer — a Pet. Obsolete now, but then it was the best thing since sliced bread. Being inquisitive about how it worked I looked around and eventually came across an excellent book by Rae West that became the reference guide for me. It was called "Programming the Pet".

The author has now brought out revised versions of that book for the Vic-20 and now for the Commodore 64.

Not so long ago a figure of 10% was estimated as the percentage of computer buyers who learn to program their machines. It is these programmers that the book is aimed at, especially those who have learnt Basic.

But this is not the book to buy if you are a complete beginner, there are better books to go to. Anyone else right up to whizz-kid machine coder should certainly find a place for it, not on the bookshelves either, but right next to the computer.

The book looks at all aspects of the 64 and some of these features need some machine-code to show them off. For example: multiple sprites, programming function keys or graphics and text displays.

Until it is brought in as a separate topic, any machine code programs are given as lists of data. To overcome the problem of mistyping lines, a special loader has been included, which patches itself into Basic. When a line is typed in, a checksum value is calculated and shown on the screen and this should correspond with the value given in the listing at the end of each line. A rather unique system and I think it's a very good idea.

Through 17 chapters the author moves methodically from advanced Basic through to machine language and then goes through graphics, sprites, sounds and peripherals like tape, disk, joysticks and paddles.

While the book is generally superb I found the chapter on system variables and ROM calls excellent. This lists the entire ROM routine by routine giving the purpose of the routine, what locations are used and how it works.

There are many example programs in Basic and machine-code and these include such gems as a three-part music player, various disk utilities, sprite editors and many more. High resolution graphics need machine-code to do them justice and the book provides these.

This is a big book, very well laid out with plenty of diagrams and explanations. Some of these can be quite detailed, for instance a look at all the waveforms in the SID chip and how

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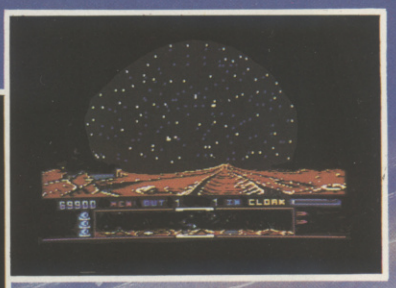

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